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Levels of stress and mechanisms of coping among male freshman athletes

Gregory A. White
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Levels of Stress and Mechanisms of Coping Among Male Freshman Athletes

Gregory A. White

Thesis submitted to the
School of Physical Education at
West Virginia University
in partial fulfillment of the requirements
for the degree of

Master of Science
in
Athletic Training

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ABSTRACT

Levels of Stress and Mechanisms of Coping Among Male Freshman Athletes

Gregory A. White

Context: Studies on freshman athletes stress levels and mechanisms of coping are lacking in frequency. This study is being performed to further the knowledge base dealing with stress and coping in the freshman collegiate population. *Objective:* The purpose of this study is to identify the levels of stress and the mechanisms of coping with stress among male freshman Football and Soccer athletes. *Design:* First design will be a 1X3 factorial design for stress using the Quick Stress Questionnaire (QSQ). The second design will incorporate descriptive statistics using percentages to examine coping via the Brief COPE Questionnaire (BCQ). *Setting:* This study will be performed at Waynesburg University. *Patients and Other Participants:* 80 athletes will be included in this study from a sample of convenience at Waynesburg University. There will be no assignment or randomization of subjects, nor will a control group exist. Subjects will be based on the number of football and soccer athletes that volunteer to be in the study. *Interventions:* The questionnaires included consist of the Brief Cope Questionnaire (BCQ), the Quick Stress Questionnaire (QSQ), and ten demographic questions used to gather responses. These will be administered at three time points throughout the semester in a pre, mid, and post test fashion utilizing a lecture located in Stewart Hall at Waynesburg University. *Main Outcomes Measures:* There will be a significant difference in the levels of stress during the three time points among freshman male football and soccer athletes. There will be a difference in the number and types of positive and negative coping mechanisms described by freshman male Football and Soccer athletes based on the responses from the questionnaires. Athletes will experience significantly higher levels of stress when comparing the pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post-test. Based on the responses male freshman football and soccer athletes will employ more negative coping mechanisms when comparing the pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post-test. Finally, based on the responses male freshman football and soccer athletes will employ more avoidance coping strategies when comparing the pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post-test. *Results:* A significant difference was noted in regards to Social/Personal relationships in the athletic population ($F_{1,43} = .179$, $p = .025$, $ES = .084$, $\beta-1 = .686$). No other significant differences were noted based on the statistical analysis of the Quick Stress Questionnaire. Percentage of responses for the QSQ indicate that all levels of stress never exceeded a low to moderate status. It was also noted based on the results of the Brief Cope Questionnaire that athletes employ more positive coping mechanisms than negative coping mechanisms. *Conclusion:* Based on the results of this research study, students experienced more stress at the time of pre-test questionnaire administration than at the mid test or post-test. Also, athletes at Waynesburg University employ more positive coping mechanisms than negative coping mechanisms. However, there is a need for further research in this area.

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Introduction

The definition of stress varies depending upon the literature. Atkinson et al.¹ state that stress occurs when “a human being faces a situation in which the events are perceived by that person as dangerous, physically and psychologically”. Altunas² defines stress simply as the frustrations that are brought about as the result of physical, mental, and emotional burdens. Still other researchers propose different explanations for stress. For instance, Lazarus and Folkman³ view stress as a function of highly demanding situations coupled with that individuals limited emotional resources for effectively coping with these demands. Rabin⁴ describes stress as a condition in which there is a marked perceived discrepancy between demands on an individual and that individual’s ability to respond. Regardless of the way stress is identified, the common ideology is that an individual who is experiencing stress will cope with that stress in a certain way, based on how that particular individual interprets the stressor. Stress is an aspect of every day life, and every person will experience different levels of, as well as react differently to, stressors placed upon them. Young men and women alike are no exception. In fact, those young adults who are attempting to make the transition to college are a group particularly prone to stress.^{5,6} The leading causes of transitional stress for freshman collegiate students especially have been identified as academic, financial, time or health related, peer and other socially related issues, or any other self imposed stressors.^{5,6,7,8}

Similar to stress, coping has as many interpretations. Lazarus and Folkman³ describe coping as “the changing thoughts and actions that an individual uses to manage the external and/or internal demands of a specific person-environment transaction that is appraised as stressful”.^{7,9,10} Simply put, coping is the process of dealing with situations

that create stress.⁵ While past literature has suggested that athletes experience less stress, improved self esteem, and better overall mental health,^{4,11} the more current research suggests that athletes on average may experience more psychological problems as a result of stressful situations than their student peers.^{4,11} Adequate attention has been paid to the transitional stressors and mechanisms of coping that affect students making the transition to collegiate life.^{11,12,13} The athletic population, however, has received scant attention in the literature to date.^{12,13}

Coping strategies have largely been regarded as either positive or negative in fashion. Positive coping mechanisms, with regard to the individual, are further identified as problem-focused or emotion-focused. Problem focused coping deals with active appraisals and physical attempts to change the present stressful situation.¹⁴ Emotion focused is very similar to problem focused coping with the exception that emotion-focused coping deals with the emotional reactions and attitudes that a person may exhibit in a stressful situation.¹⁷ It may be assumed that because athletes are expected to endure all of the student stressors associated with collegiate lifestyle, as well as those imposed through athletic participation, that the athlete would experience a greater amount of stress and would be more prone to employ inadequate, or negative type, coping mechanisms.

It has been shown that “college students, especially freshmen, are a group particularly prone to stress due to the transitional nature of college life.”^{1,2} The leading causes of transitional stress for college freshman have been identified as academic, financial, time or health related, peer and other socially related issues, or any other self-imposed stressors.^{1,2,3,4} Athletic participation requires additional time commitments, places individuals in a competitive social environment, and is physically taxing on the

body. Combined with the rigors of full time academia, financial concerns, new living arrangements, and lack of strong interpersonal relationships or family contact, the athlete is placed under considerable amounts of stress. Furthermore, it has been proposed by Storch⁴ that mental health services within the collegiate setting are underutilized because athletic personnel are not adequately trained in the recognition of psychological distress surrounding sport, and also because athletic personnel may associate and or interpret signals of distress as athletic weakness and are therefore less likely to consider an athletes need for referral. Unfortunately, few studies have examined the transitional stressors and coping mechanisms of freshman students, and no known systematic research has evaluated performance anxiety with collegiate athletes,¹⁵ despite evidence that athletes themselves are potentially at greater risk than their non-athlete peers.⁴ Therefore, the purpose of this research study was to identify the levels of stress and the mechanisms of coping with stress among male freshman football and soccer athletes in their first semester at a Division III institution.

METHODS

Design

The design of this study was a prospective descriptive study of existing groups using a sample of convenience to describe and compare stress levels and coping mechanisms at three different time points for male freshman football and soccer athletes. There was one factorial design, which was a 1X3 factorial design for stress using the Quick Stress Questionnaire (QSQ). The independent variable was time (pre, mid, and post test). The dependant variables were academic, financial, social, stress at this time and stress last year as compared to this year. The second design incorporated descriptive

statistics using percentages to examine coping via the Brief COPE Questionnaire (BCQ). The responses at three time points were evaluated for the QSQ and BCQ.

Subjects

At the start of the study eighty one subjects volunteered to be in the study. The average age of the participants at Pre-season testing was $18.21 \pm .493$ years. All participants in this study were freshman males and members of either the testing University's men's' soccer ($n = 17, 21.0\%$) or football ($n = 64, 79.0\%$) teams. At mid-season testing there remained a total of fifty nine participants. Twenty one percent ($n=17$) of men's' soccer athletes and 51.9% ($n=42$) football athletes reported for this session of the research study. Twenty seven and two tenths percent ($n=22$) of participants did not report for mid season testing. Finally, 16.0% ($n=13$) soccer athletes and 37.0% ($n= 30$) football athletes reported for post-season testing.

It was the original intention of this study to include 100 male freshman students and 100 male freshman athletes so as to examine the potential differences among the two groups in levels of stress and the mechanisms of coping. However, at the time of questionnaire administration there was no response, nor attendance, from the freshman student population. Following the adjustment in study method and purpose the participants in this study included 81 male freshman athletes from the University men's soccer and football teams, of which only 43 remained following all three examination time points. At the time of mid test examination 27.2% ($n=22$) of subjects did not return for additional testing, and at the time of post-test examination 46.9% ($n=38$) of subjects were lost. There was no assignment or randomization of subjects nor was a control group used in this study. Subjects were based on the number from both groups who volunteered

to be in the study. Inclusion criteria for this study required that participants be male freshman students at Waynesburg University who are on either the varsity soccer or football team. Participants who were female, non-freshman, non-athletes, who participated on varsity teams other than soccer or football, or who participated on club or intramural teams were excluded from this study. This study received approval from both the Institutional Review Board (IRB) committee at West Virginia University and also by the IRB board of the University where testing was to take place.

Instruments

This study employed two separate questionnaires that measured stress and mechanisms of coping for freshman male football and soccer athletes. The Quick Stress Questionnaire (QSQ) is a 25-item, self report inventory designed to measure sources of stress and stress-related symptoms in college students using a 9-point Likert scale (1 = little stress, 9 = extreme stress). The QSQ provides a cost-effective, psychometrically sound measure of stress sources and symptoms. Respondents rate the severity of 8 potential areas of stress (academic, social/personal, family, financial, self-image, health, sexual, day-to-day hassles) on their lives and identify the types and degrees to which they experience various stress-related symptoms. Individual stress symptoms can be classified as cognitive (eg, anxiety), somatic (eg, headaches), or behavioral (eg, procrastination). Adding items according to the factor loading reported by Otani, one can derive stress symptom factors. Support for the QSQ's construct validity has been established through maximum likelihood factor analysis, which revealed that the 9 stress source items loaded (loading reflects the extent of a relationship between each observed variable and each factor) on a single stress source factor. Maximum likelihood factor analysis also

identified three symptom factors that were labeled cognitive, somatic, and behavioral. Omega coefficient estimates of internal reliability for the cognitive, somatic, and behavioral factors were observed to be .89, .83, and .79, respectively.¹⁶

The Brief COPE Questionnaire (BCQ)¹⁷ consists of 28 questions, which measure 14 conceptually different coping reactions. Two questions are included for each of the 14 different coping mechanisms and are labeled “A” and “B” respectively for each domain. Some are adaptive, others problematic. The BCQ is a derivative of the full inventory COPE questionnaire. The items can be used in retrospective and concurrent situational format or dispositional format. The BCQ uses a four-point Likert scale ranging from 1 (I haven’t been doing this at all) to 4 (I’ve been doing this a lot).

The Brief COPE questionnaire is a short form of Carvers’¹⁶ previously published measure called the COPE inventory, which has proven to be useful in health related research. The brief cope questionnaire was developed by Carver and colleagues for three distinct reasons. Initially, none of the preexisting measures sampled all of the specific domains that they felt were of theoretical interest. Second, preexisting scales seemed to suffer to a greater or lesser degree from a lack of clear focus among content items, and finally, the items contained in preexisting scales were chosen initially as being diverse and representative examples of potential coping responses, not because they represented theoretically interesting categories of coping.

Internal structure of the BCQ was evaluated using an exploratory factor analysis on the item set using an oblique rotation to permit correlations. Nine factors had Eigen values greater than 1.0 which accounted for 72.4% of the variance in responding. Results indicated that the structure was conceptually consistent to that reported for the full

inventory. Analysis produced reliabilities at or above .50 ($\alpha=.50-.90$), which supported the internal validity of the abbreviated scales. The questionnaire was estimated to take about 5-10 minutes to complete.^{16,18}

Procedures

Freshman football and soccer athletes were contacted initially via mass e-mail, and were invited to attend an informative meeting regarding their potential voluntary participation in this study. Potential participants who reported to the informative meeting regarding this study were then given a copy of the study cover letter, which was then read to them aloud. All potential participants had the opportunity to ask questions regarding their potential participation in the study.

Following the information session all those potential participants who did not wish to volunteer as a subject in this study were allowed to leave with no ramifications. Those electing to stay and become study participants were administered both the Quick Stress Questionnaire (QSQ) and the Brief COPE Questionnaire (BCQ). The examiner was present in the examination room while the participants answered both the questionnaires. Upon completion of the questionnaires, participants deposited them into an envelope at the front of the room, and then left. Once all participants had completed the questionnaires, the envelopes were collected and filed securely by the examiner in a safe location until they were required for later examination.

Participants were notified, via mass e-mail, of the subsequent examination dates. This study consisted of three separate testing dates. Baseline testing occurred in August and was prior to the start of the sport pre-season for the freshman male football and soccer athletes. Mid-test examination occurred in the month of October and Final

examination took place in the month of December prior to the end of the academic semester. Completion of the questionnaires followed the same procedures as described previously.

Data Analysis

Data analysis for this study included the demographic questionnaire; the responses for the 5 focus questions of the Quick Stress Questionnaire, and the responses of the Brief Cope Questionnaire. The QSQ included questions 1, 2, 4, 24, and 25, and responses were categorized as either low stress (response between 1-3), moderate stress (response between 4-6), or high stress (response between 7-9), with an optional no comment response (response 10). The Brief Cope Questionnaire results were grouped according to whether that particular question of the survey was regarded as positive or negative in nature. For results and question grouping see Table D8.

Statistical Analysis

Statistical analysis consisted of the percentages of responses (QSQ - Quick Stress Questionnaire and BCQ - Brief Cope Questionnaire), means, and standard deviations. A 1X3 Repeated Measures Analysis of Variance (ANOVA) was used to compare responses from the QSQ for financial, academic, social, stress at this time and the level of stress as compared to last year at this time for the three time points for the male freshman football and soccer athletes. Pairwise comparisons, when the main effects were apparently significant for the QSQ, were completed. The p value was established as 0.05 for all analyses. All statistical analyses were conducted using the latest available version of SPSS Version 14.0 for Windows. (SPSS Inc; Chicago IL)

RESULTS

Demographic Questionnaire

Results of the demographic questionnaire revealed that 4.9% (n=4) respondents participated in a club or intramural sport offered by the university, while 51.9% (n=42) respondents did not, and 43.2% (n=35) did not respond. Sixty nine and one tenth percent (n=56) respondents indicated that they in fact do engage in regular physical activity while 2.5% (n=2) indicated that they do not, and 28.4% (n=23) did not respond.

Question number seven of the demographic questionnaire showed that 22.2% (n=18) and 27.2% (n=22) subjects engaged in regular physical activity 4 and 7 times, respectively, outside of their athletic requirement on a weekly basis. Although 24.7% (n=20) of the total 81 subjects did not respond to this question, 4 and 7 times per week were the largest values reported for this question. With regards to question number eight, 19.8% (n=16) subjects reported that they participated in both 60 minutes and 120 minutes of physical activity per session. See Table D1 for further results.

Ninety six and three tenths percent (n=78) answered question number nine indicating that 54.3% (n = 44) of the 78 subjects who responded do in fact engage in physical activities with the purpose of relieving stress. Forty two percent (n = 34) of the 78 subjects who responded do not engage in physical activity for purposes of relieving stress. Three and seven tenths percent (n=3) did not indicate a response for this question.

Lastly, sixty six and seven tenths percent (n=54) indicated a response for question number ten. Responses showed that 55.6% (n=45) of the 54 subjects responding do experience a reduction in their overall level of stress as a result of their physical activity sessions. Eleven and one tenth percent (n=9) of the 54 responding subjects do not

experience any reduction in stress as a result of their physical activity. Thirty three and three tenths percent ($n = 27$) did not indicate a response for this question.

Quick Stress Questionnaire

Following the demographic questionnaire subjects responded to the Quick Stress Questionnaire. Table D2 indicates responses (mean, standard deviation, and ANOVA statistics) from questions 1, 2, 4, 23, and 24. These questions relate to Academic concerns, Social/Personal relationships, Financial concerns, Overall level of stress and anxiety at this time, and Overall stressors this year in comparison to those of last year, respectively. The mean and standard deviation results were reported for all remaining questions (TABLE D). There was a significant difference with moderate to high power noted between the three time points on question 2 “Social/Personal Relationships” ($F_{1,43} = 3.874$, $P = .025$, $ES = .084$, $\beta-1 = .686$). The most significant difference was noticed in the comparison between pre-test and post-test data. This comparison yielded a t value of 2.747 with a significance of $p=0.009$. Although the effect size for such a result has been shown to be relatively small, this result does exhibit moderate to high power, indicating that the social and personal relationships among collegiate male freshman football and soccer athletes have been shown to be a source of definitive stress over the entire first semester of their freshman academic year.

There was no significant difference on the QSQ for question 1 “Academic or work concerns” ($F_{1,43} = .179$, $P = .836$, $ES = .004$, $\beta-1 = .077$), question 4 “Financial concerns” ($F_{1,43} = 3.874$, $P = .563$, $ES = .028$, $\beta-1 = .140$), question 23 “overall level of stress and anxiety at this time” ($F_{1,43} = 1.043$, $P = .362$, $ES = .022$, $\beta-1 = .220$), and question 24 “Overall stressors (studies, jobs, etc) this year in comparison to those of last

year” ($F_{1,43} = .173$, $P = .841$, $ES = .004$, $\beta-1 = .076$).

Responses for all questions are based on a Likert scale of 1 - 9 and are grouped into stress levels of low (1-3), moderate (4-6), and extreme (7-9). Examination of the mean results using 43 subjects that were retained throughout the three time points of this study indicate that “family concern” (4.63 ± 2.19) and “other” (4.00 ± 2.91) stressors were shown to be moderate at the pre-test questionnaire administration. Family concerns remained moderately high at the time of mid-test examination (4.21 ± 2.19), but then declined to low stress (3.84 ± 2.18) at post-test administration. Other type stressors declined to the low category and remained there at mid-test (3.28 ± 1.66) and post-test (3.44 ± 2.46). All other responses for the Quick Stress Questionnaire indicated that the levels of stress over the three time points of administration were only indicated to be low. Also based on the QSQ responses, athletes indicated that tics, tremors, and muscle spasms, as well as eating disorders, overeating, or under eating were experienced the least as a result of stress. See Table D4 for mean and standard deviation responses for these and all other Quick Stress Questionnaire responses.

Percentages of responses for the Quick Stress Questionnaire (Table D5 – D7) are reported for all three time points for both male soccer and football athletes. Based on the percent responses at pre-test administration, 40.8% ($n=43$) of subjects had experienced moderate stress and 33.2% ($n= 27$) of subjects had experienced low stress as a result of social concerns. This accounts for 74% ($n=70$) of the total 81 respondents at pre-test examination. Pre-test examination also indicated that 83.9% ($n=68$) of subjects experienced indigestion, stomachache, diarrhea, ulcer attacks, constipation, or colitis the least as a result of stressors. See Table D5 for additional pre-test results.

Mid-test and post-test results for the percentages of responses for the quick stress questionnaire indicate similar results. Social concerns were reported by subjects to be moderately high at mid-test and post-test examination, and indigestion, stomachache, diarrhea, ulcer attacks, constipation, or colitis was reported to be the lowest result of stress at mid-test and post-test administration. Mid-test examination results were based on 59 retained respondents of the original 81, and post-test results were based on 43 respondents of the original 81. See Tables D6 and D7 for additional results.

Brief Cope Questionnaire

This questionnaire consisted of 28 questions that covered 14 styles of coping. There were 2 questions per coping style, an “A” and a “B” question. Both the “A” and “B” questions have eight positive items and six negative items. The eight positive coping strategies were active, planning, positive reframing, acceptance, humor, religion, using emotional support, and using instrumental support. The six negative coping strategies are self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame. For percentage of responses of the brief cope questionnaire see Table D9 for pre-test, D10 for mid-test, and D11 for post-test values.

Means and standard deviations were reported for all questions of the Brief Cope Questionnaire (Table D8) for all three time points. Percentages of responses for the BCQ were reported in Tables D8 – D10. All questions of the Brief Cope Questionnaire have been grouped into positive and negative type coping mechanisms, and are displayed as such in Table D8.

Based on the mean responses for the BCQ, the most frequently reported mechanisms of coping were positive in nature. Question 7 “I’ve been accepting the

reality of the fact that it has happened” showed the highest initial mean value for positive coping at pre-test examination (2.728 ± 1.04). This value decreased slightly at mid-test (2.644 ± 0.89) and post-test (2.605 ± 0.85) examination. Similarly, question 2 “I’ve been taking action to try to make the situation better” showed initially the highest value for positive coping (2.704 ± 1.018). The mean value did decrease at the time of mid-test (2.525 ± 1.006) examination, but rose to above the initially reported value at the time of the post-test (2.721 ± 0.984) BCQ administration.

It was also noticed that the lowest responses indicated were the negative coping mechanisms. Most specifically, the mean response for questions 23 “I’ve been using alcohol or other drugs to make myself feel better”, 24 “I’ve been using alcohol or other drugs to help me get through it”, and 25 “I’ve been giving up trying to deal with it” were among the lowest values reported not only for the negative type mechanisms, but of all responses for this questionnaire. In fact, the lowest mean response noted was for question 24 in the pre-test (1.482 ± 0.950). This mean value only increased slightly at the time of mid-test (1.576 ± 0.914) and post-test (1.930 ± 1.099) examination. Keeping in mind that a score of 1 on the BCQ implies that the subject “hasn’t been doing this at all”, this result implies that negative type coping mechanisms are among the least employed mechanisms of coping within this subject population. For further results concerning the Brief Cope Questionnaire refer to Table D8.

Based on the percentage of responses, the respondents answered “I have been doing this a lot” most often for “Positive Reframing, B” at a rate of 28.4% ($n= 23$) and this was followed by “Positive Reframing, A” at 19.8% ($n= 16$) for the pre-test. Examination of responses that include the numbers 2 for “ I have been doing this a little

bit” or 3 for “ I have been doing this a medium amount”, indicating implementation of that strategy. Respondents employed the positive strategy of “Acceptance” most at a rate of 66.7% (n= 54) for both question A and B of that mechanism. The least reported response implemented by the respondents for positive coping was “Religion”. The “A” type question for religion showed a rate of 43.2% (n=35), and 30.9% (n= 25) for question type “B”. (Refer to Table D9 for additional pre-test results) Mid-test examination (Table D10) of coping mechanisms showed that “Active, B” at a rate of 12.3% (n=10) was the most frequently implemented positive coping mechanism. This was followed by “Planning, A” at a rate of 9.9% (n=8). Post-testing data analysis (Table D11) showed that both “Active, B” and “Planning, B” were the highest reported positive means of coping mechanism employed by respondents at a rate of 8.6% (n=7) for both.

There are 6 negative coping strategies (self-distraction, denial, venting, substance use, behavioral disengagement, self-blame) measured in the questionnaire. During the pre-test respondents reported that “Self-Distract A and B” were the most implemented means of coping at rates of 11.1% (n= 9) and 12.3%(n= 10), respectively. The mechanism of coping employed the least at pre-testing examination was “substance, B” at a rate of 74.1% (n=60) according to the pre-test results. For additional pre-test results see Table D 9. Mid-testing results show that the respondents employ the negative coping mechanism of “self-blame A and B” most frequently at rates of 8.6%(n= 1) and 7.4%(n=6) respectively. The negative coping strategy employed the least at mid-testing (table D10) was “Substance, B” at 45.7% (n=37) followed by “self blame, B” at 35.8%(n= 29). Finally, the post-test examination (Table D11) showed that “self-blame, B” was employed most frequently followed by “Self-Distract, B” at 6.2% (n= 5). The least

frequently employed mechanism of negative coping seen at post-test examination was “denial A and B” at 27.2 %(n= 22) and 28.5%(n= 23), respectively.

DISCUSSION

The purpose of this study was to examine and identify the levels of stress and the mechanisms of coping with stress among male freshman athletes. The first hypothesis indicated that there would be a significant difference, between the three time points, for freshman football and soccer athletes when evaluating academic and/or work concerns. This hypothesis was rejected.

The second hypothesis indicated that there would be a significant difference, between the three time points, for freshman football and soccer athletes when evaluating their level of stress regarding their social and personal relationships. This hypothesis was confirmed.

The third hypothesis of this study indicated that there would be a significant difference, between the three time points, for freshman football and soccer athletes when evaluating financial concerns. The results of this study indicate that no significant difference was noted, and thus, this hypothesis was rejected.

The fourth hypothesis of this study indicated that there would be a significant difference, between the three time points, for freshman football and soccer athletes when evaluating the overall level of stress and anxiety at the present time (time of exam administration). The results of this study indicate no significant difference was noted, and this hypothesis was also rejected.

The fifth hypothesis of this study indicated that there would be a significant difference, between the three time points, for freshman football and soccer athletes when

evaluating the overall level of stress of the freshman male athletes this year in comparison to last year. The results of this study indicate that no significant difference was noted, and required the rejection of this hypothesis as well.

Quick Stress Questionnaire

Academic

Research reports that academic stress may be the result of excessive homework, unclear assignments, pressure to earn good grades, or complications with professor-student relationships.^{1,18} Furthermore, these levels of stress were reported by Stilger et al¹⁶ to fluctuate throughout the academic year. He reports that October, December, and March were the most stressful months for student academics. Additional literature provided by Misra and McKean⁷ indicates that students, especially freshman and sophomores experience higher levels of stress than junior and seniors, when examining academic stressors. Although this study was not conducted at exactly the same time points as that performed by Stilger¹⁶, both the October and December time points were included in this study. The results of this study indicate that at no time point was any significant difference noted for academic concerns among a freshman athlete population. Also, there was no significant difference noted between the mean responses on the Quick Stress Questionnaire regarding academic concerns. Ultimately, this result does not support the conclusions of either Stilger¹⁶ or Misra and McKean⁷, and indicates that the male freshman population of athletes surveyed at the test university does not experience any fluctuation in the levels of academic stress. It was expected that the overall level of stressors experienced by the athletes would be elevated at the mid-test or post-testing examination due to the imposition of mid term and final examinations. It is possible,

however, that this result was not seen due to the high academic standard that the university being used as a test site upholds as criteria for admission. Furthermore, it may be this academic standard that provided a sample of male freshman athletes who are accustomed to, and do not interpret additional academic issues as, stressful.

Social/Personal Relationships

Social stressors can be any interpersonal situation that is regarded by the individual as unfavorable. Negative interactions between the student or athlete and fellow students, friends, roommates, coaches, a boyfriend or girlfriend, or even family members can cause elevated levels of stress within that student or athlete.¹ There was a significant difference noticed in the level of social/personal relationship stress among freshman over the three time points with the most significant difference occurring within the comparison of the pre-test to the post-test. The largest difference in mean response was noticed between the pre-test and post-test for athlete social and personal relationship concerns. At the time of pre-testing for both male soccer and football athletes the mean response of the level of stress was 4.91 ± 2.41 . This level increased slightly at the time of mid-test administration (4.51 ± 2.16) most likely due to mid term examinations, and then decreased significantly at the time of post-test administration (3.67 ± 1.87) despite final examinations. The most apparent difference between the three time points occurred during the time between mid-test examination and post-test examination. Most likely, why this difference occurred can be explained by comparing social and personal relationships during the three time points. Initially, the athletes did not have an opportune time to develop some significant peer relationships. Initial stress levels that athletes demonstrated at the pre-test examination are moderately high. The current literature

proposed that students would experience a moderate to high level of stress as a result of trying to establish these peer relationships,^{3,18} and that this increased level of stress would be seen early in the first semester. This study supports that claim with respect to the athletic population. Keeping in mind that at the time of post-testing administration athletes have developed adequate relationships, have become familiar and somewhat comfortable with academic examination procedures and requirements, and are most likely finished with their in season athletic requirements. The significant difference noted in this study between the pre-test/post-test, with regards to peer/social relationship stress, supports the current literature. The mean responses of all three time points also shows a significant difference noted between the three time points of administration, and does so with moderate power.

Financial Concerns

Financial stressors have been identified as one of the leading causes of transitional stress for freshman collegiate students.^{5,6,7,8} Bills and general living expenses can include rent, food, utilities, transportation, clothing, and entertainment. Stilger¹⁶ and Feldman¹⁸ indicated that undergraduate athletic training students may have more financial stress than typical college students because of the unpaid clinical hours, which then doesn't leave time for a part time job. Since athletic training students experience similar time schedules to that of their athletes it can be assumed that the same problem exists in both populations. Keeping in mind that many students who attend universities, come from a wide range of financial classes, one would assume that the high cost of education combined with the additional and unforeseen expenses of collegiate life would cause elevated stress levels, especially in the freshman population. Aside from tuition, students

may be required to find additional sources of finance to afford rent, clothing, food, transportation, entertainment, or in the case of athletes, athletic gear that is not provided by the institution. Furthermore, athletes are a group that would be particularly exposed to financial stress due to the fact that their athletic commitment would, in most cases, not allow for part time employment. This study sought to explore this aspect of potential stress within the athletic population. No significant difference in the overall level of stress was noted at any time point throughout this study concerning financial stress in the male freshman athletic population that was surveyed. This result does not imply that male freshman athletes do not experience financial stressors, however. The average response for financial concern at all three time points remained at a moderate level. Although there were no significant differences reported over the time points of questionnaire administration, the level of mean reported stress still implies that male freshman athletes at the test university do, in fact, find financial concerns moderately stressful.

On the other hand, it is quite possible that the levels of financial stress remain unchanged due to the athlete's lack of concern for financial matters in comparison to athletic related issues. Also, it can be assumed that the majority of athletes at the southwestern PA university are not directly responsible for the financial requirements associated with normal collegiate expenses, but rather receive third party funding from government loans, grants, or parents. Further research on this issue may yield a different result when examining financial stressors in the latter semesters of an athlete's college career.

Overall Level of Stress and Anxiety at This Time

Life stressors that can affect the athlete could be considered any negative event

that occurs throughout their lifetime. These events can be expected or unexpected.²¹

Students entering the collegiate setting are exposed to an entirely new set of variables that may negatively affect their stress level. Two hundred and forty nine collegiate students (63 male, 186 female) were included in a study by Misra and McKean,⁷ and their results indicated that students in general experience higher stress due to pressure ($p = .49$) and self imposed stress ($p = .03$) than by other stressors in their examination. Furthermore, Misra and McKean⁷ conclude that male college students have a lower level of reactions to stressors, which may result from their socialization, which teaches them that emotional expression is an admission of weakness and not masculine.

It is important to also consider that athletes who are entering into this potentially stressful situation may also be experiencing some elevated stress level as a result of negative events that have occurred prior to the new aspect of the collegiate setting. This aspect may potentially be compounded by the athletic requirements that new students undertake, thus producing an elevated stress level during the first semester of collegiate life. By examining the overall levels of stress at the time of questionnaire administration, the identification of the experiencing elevated levels of stress as a result of the sudden change of lifestyle that college requires can be explored. This study did not show that the athlete respondents experienced any significant difference in the overall level of stress at the time of questionnaire administration for any of the three time points. The responses indicate that athletes experienced a minimally moderate level of stress over the duration of the study. Since there was no significant difference reported in this study regarding overall stress at this time, one of two explanations could be assumed. First, the athletic population at this university does not interpret the changes to their lives in terms of

collegiate life as stressful, or the athletic population does experience an increase in overall stress as the result of collegiate life, and that level of stress increase remains unchanged throughout the first semester of the freshman academic year.

Overall Level of Stress This Year Compared to Last Year

Similar to the level of stress at this time, this research study also sought to examine the levels of stress at this time compared to those of last year for the athlete respondent. This question on the Quick Stress Questionnaire assumes that the respondents are already experiencing some level of stress as a result of ordinary life events, and that this level of stress is compounded by the addition of the overall experience of collegiate life. This study examined this aspect of potential stress and found that no significant difference was reported at any time point. However, the mean responses for this question indicated that the athletic population surveyed was experiencing moderate stress for the duration of the study. This indicates that the athletic population was experiencing a moderate increase in their overall levels of stress at the time of questionnaire administration in comparison to similar time points one year previous where collegiate stressors were not imposed. Ultimately, the respondents at this university indicate a moderate increase in stress as the result of collegiate life.

Although the results of this study did not indicate that a significant difference was noted on any of the sources of stress that were being examined, information regarding other sources of stress among freshman athletes can be extrapolated. The forty three subjects that were retained throughout the three time points of this study indicate that “family concerns” and “other” stressors were shown to be moderate at the pre-test questionnaire administration. This supports both Beck’s¹⁹ and Blimming’s²⁰ inference

that an individual's personal security can be challenged due to the abrupt change in their level of acceptance by peers, lack of comfort due to absent parental interaction, and complete disruption of their normal family network in a negative manner as a result of their transition into University life.

Life stressors that may affect the student or athlete could be any negative event that happens throughout a person's lifetime. These events can be expected or unexpected, and may be caused by internal or external sources. Internal life stressors may be situations such as forced changes in sleep or eating habits, or even illness. External life stressors may include death of a family member or friend, parental divorce, marriage, pregnancy, sexual difficulties, or residential changes.²¹

Internal life stressors such as "health concerns", "self image", and "sexual concerns" on the Quick Stress Questionnaire, according to the results of this study, were reported to be low to moderate. In fact, with regards to the low-moderate mean responses to these internal stressors, no support for Gieck's²¹ claim that these factors would be elevated can be given. This was also the case with regards to external stressors such as "family concerns". Although the initial mean responses for family concerns were noted to be moderate at the pre-test and mid-test examination, the post-test examination showed a decline in mean response to a low-moderate status, thus refuting the literature's claim that external stressors would also be elevated in the collegiate population.

It should also be noted that the mean responses for all Quick Stress Questionnaire questions, in regards to the reactions to stressors, never exceeded a low-moderate status at any time during the course of this study. Therefore, with the exception of social stressors, all of the aspects of stress that recent literature claimed would produce elevated

stress levels in the collegiate population were not supported by the results of this study.

Brief Cope Questionnaire

The first hypothesis, regarding the Brief Cope Questionnaire, indicated that there would be a difference in the number and types of positive and negative coping mechanisms described by football and soccer athletes based on the responses from the questionnaire. This hypothesis was confirmed.

The second hypothesis, regarding the Brief Cope Questionnaire, indicated that subjects will employ more negative coping mechanisms based on the responses when comparing the pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post-test. This hypothesis was rejected.

Initially, this study sought to identify the most frequently implemented means of coping with stressors by the male freshman athletic population. The results of this study show the trend across all testing time points that freshman male athletes employ positive coping mechanisms more frequently than negative coping mechanisms. This supports Pritchard and Wilson's study that showed males employ both problem and emotion focused coping, or what is generally termed positive coping, more frequently in the first semester of collegiate life than avoidance type, or negative type coping, skills²². In fact, they proposed that males are exposed to many new situations in the first semester of collegiate life which, in turn, challenges them to cope in new ways. Participation in athletics requires that athletes develop the ability to effectively overcome adverse events in a timely and methodical fashion. Success in athletics depends on the ability of the athlete to interpret the stressful situation and react to that stress in such a way that will allow them to continue their participation in a positive manner. It seems only natural that

athletes will employ similar means of coping to stressors off the field to those employed on the field, and this research supports that construct.

Interestingly, however, respondents indicated that religion was the least implemented positive means of coping at all three time points of this study. This is somewhat intriguing considering that the test university identifies itself, and recruits potential students based upon its status, as a Christian institution. One would naturally have assumed prior to the initiation of this study that religion would have been reported to be employed rather frequently, based upon the selected population. However, this was not the case when examining the results of coping mechanisms. Rather, the most frequently implemented positive coping mechanism across the three time points was “active”, indicating that athletes cope with stressors by actively taking steps to make their situations better.

It should also be noted that athletes at the southwestern Pennsylvania university employ negative coping styles less frequently than positive coping styles. Among the most frequently employed positive coping mechanisms for all three time points of administration were positive reframing, active, and planning. Among the least reported negative coping mechanisms were substance use/abuse and denial indicating that athletes at the testing site not only are able to accept and admit that they are experiencing increased levels of stress, but are not coping with that stress in a negative way that employs the use or abuse of unhealthy substances such as alcohol or drugs. This result not only rejects this examiners hypothesis that the athletic population would more often seek negative means of coping, but also serves as evidence that athletes naturally employ positive coping mechanisms for both internal and external stressors.

Clinical Significance/Implications

The results of this study indicate that athletes experience a significantly higher level of stress among their personal and social relationships. This is relevant to athletic trainers because as professionals this may be a contributing factor in their current level of social stress, especially when injury may be involved. Furthermore, this result beseeches athletic trainers to actively seek out the means by which to not only recognize the signs of social and personal stressors among their athletes, but also to train themselves in how to help manage this stress as well as be familiar with the appropriate additional attention that may be needed.

Additionally, this result advocates the need for freshman programs that result in student to student interactions within the university curriculum. Perhaps, universities and colleges similar to that of the university examined in this study would produce a lower overall level of perceived personal and social stress among its freshman by implementing more programs during orientation that focus on the stress associated with college life, and some of the more positive and healthy means of coping.

Results of this study should be interpreted with caution due to its subject population, its lack of control group, and high rate of subject attrition. The results of this study are applicable only to freshman football and soccer athletes at one institution, and are not generalizable to other Division III institutions. Attempts at attaining a control of male non-athlete freshman students was made in this study, but eventually abandoned due to lack of student interest and cooperation from faculty members to allow missed class time. Also, this study had no control over the rate of subject drop out, due to external uncontrollable factors such as injury, lack of playing time, violation of university

or team rules, and academic probation.

CONCLUSIONS

This study sought to first, examine the levels of stress among male freshman football and soccer athletes, and second, to examine the mechanisms through which those athletes cope with stress as well as identify the most common mechanisms employed. Five variables were included for examination from the Quick Stress Questionnaire based on the literature and included: academic stress, personal an/or social relationship stress, financial stress, stress level at this time, and the level of stress at this time in comparison to stress at this time last year. Based on the results, the only significant difference in stressors over the three time points noted among the five focus variables was found in social and/or personal relationship stress. No other significant differences were seen in this study. When examining the Brief Cope Questionnaire, this study indicated that freshman male athletes at the test site employ most often positive, rather than negative coping mechanisms. Ultimately, however, a lack of adequate research regarding the athletic population in terms of the levels of stress and the mechanisms of coping exists in the current literature, and indicates a further need for studies in this area.

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APPENDICES

APPENDIX A

THE PROBLEM

Research Question

Students making the transition from high school to college often experience varying degrees of stress. The sudden changes in their immediate environments and lifestyles are often accompanied by some other negative external factor that may cause, or further intensify, a stressful state. It has been shown that “college students, especially freshmen, are a group particularly prone to stress due to the transitional nature of college life.”^{1,2} The leading causes of transitional stress for college freshman have been identified as academic, financial, time or health related, peer and other socially related issues, or any other self-imposed stressors.^{1,2,3,4}

One category not included as a form of external stress for the freshman college student is athletics. Do our athletes really experience less stress from their transition to college than their non-athlete peers? While participation in athletics at any level has been shown in the past to be associated with improved self esteem, body image, general mental health, and decreased levels of social anxiety, depression, stress, and diabetes^{23,24,25,26,27} more current research suggests that student-athletes on average may experience more psychological problems than their non-athlete peers.¹¹ Perhaps the old mantra of coaches telling their athletes to participate at all costs is one reason for the lack of attention paid to the athletic population until most recently. Storch⁴ proposes two reasons for the underutilization of mental health services for collegiate student athletes. First, he believes that athletic personnel are not well trained in recognition of signs of psychological distress. In fact, Mentink²⁸ found that intercollegiate coaches had significant difficulty

recognizing the signs of depression in their players. Secondly, Storch⁴ proposes that athletic staff members may view psychological distress as a sign of weakness and thus, be less likely to link players to appropriate resources. It makes sense that athletes, our “specimens of perfection” our “gladiators“, would be less inclined to report or even demonstrate any sign of psychological distress for the fear of being labeled as weak. So they learn to cope with or ignore their problems.

Much attention has been paid to the non-athlete population with regard to how these individuals cope with the imposed stressors that result from the transitional changes associated with college. However, “coping style has received scant attention in the sport psychology research literature to date”^{12,13} Coping strategies have largely been regarded as either positive or negative in fashion. Positive coping mechanisms, with regard to the individual, are further identified as problem-focused or emotion-focused. Problem focused coping deals with active appraisals and physical attempts to change the present stressful situation.¹⁴ Emotion focused is very similar to problem focused coping with the exception that emotion-focused coping deals with the emotional reactions and attitudes that a person may exhibit in a stressful situation.¹⁵ Both are considered positive means of coping because they involve some levels of cognition and employ a conscious strategy in attempt to elicit a change. On the other hand, individuals who employ strategies to avoid stressful situations are employing negative coping mechanisms. Avoidance coping involves removal from experiencing or thinking about a stressful situation.^{7,29,30,31,32}

The ability to cope effectively with stressful events is imperative for successful sport performance. The failure to cope with acute stressors can have a detrimental effect on various psychological processes such as concentration, attentional focus, and

arousal.³³ Alterations or impairments of any of the aforementioned psychological processes could easily be assumed to hinder maximal performance of any athlete in any sport. No known systematic research has compared the rates of performance anxiety between collegiate athletes and non-athletes.¹⁵ While some studies have documented cases of depressed college athletes, no known studies have compared the levels of depressive symptoms or stressors between athletes and non-athletes, “despite evidence that they may be at greater risk than their non-athlete peers”.⁴

From personal experience working as a Certified Athletic Trainer at a major Division I university, athletes had demonstrated many different coping styles. Most notably were the avoidance type coping styles. The consumption of alcohol during the season, as well as other methods such as fighting with others, or burning and cutting oneself, were means of coping with stressors associated with the athletes observed. Additionally, the means and frequency of intervention for individuals who demonstrated such symptomatic behavior was inconsistent. This may have been partly due to the lack of adequate knowledge in regard to athlete stress and mechanisms of coping. The research question is what were the levels of stress at the time of questionnaire distribution and what coping mechanisms were being employed by male football and soccer athletes in their first semester of collegiate life during three different time points?

Experimental Hypotheses

1. Freshman male football and soccer athletes will experience significantly higher levels of stress when comparing pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post-test for levels of stress between freshman male football and soccer athletes in academic or work concerns.
2. Freshman male football and soccer athletes will experience significantly higher levels of stress when comparing the pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post- test for levels of stress between freshman male football

and soccer athletes in social and personal relationships.

3. Freshman male football and soccer athletes will experience significantly higher levels of stress when comparing the pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post-test for levels of stress between freshman male football and soccer athletes in financial concerns.
4. Freshman male football and soccer athletes will experience significantly higher levels of stress when comparing the pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post-test for levels of stress between freshman male football and soccer athletes in the overall level of stress and anxiety at this time.
5. Freshman male football and soccer athletes will experience significantly higher levels of stress when comparing the pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post-test for levels of stress between freshman male football and soccer athletes in overall stress this year in comparison to last year.
6. There will be a difference in the number and types of positive and negative coping mechanism described by male football and soccer athletes based on the responses from the questionnaire.
7. Subjects will employ more negative coping mechanisms based on the responses when comparing the pre-test to post-test, followed by the pre-test to mid-test, and lastly the mid-test to post-test.

Assumptions

1. All subjects answered the questionnaire honestly, openly, and to the best of their ability.
2. The Quick Stress Questionnaire (QSQ) is a valid method for evaluating the current levels of stress for the populations being studied.
3. The Brief Cope Questionnaire is a valid method for evaluating the current levels of stress for the populations being studied.
4. Participants are experiencing stress at the time of the questionnaires administration.
5. Participants are employing at least one form of coping mechanism to deal with their stress when the questionnaires are administered.
6. The sample of male freshman football and soccer athletes represent the entire male freshman athlete population at Waynesburg University.

Delimitations

1. Only collegiate freshman male athletes from football and soccer will participate in this study.
2. Only full time freshman football and soccer athletes at Waynesburg University will participate in this study.
3. This study can only be generalized to the other freshman male athletic populations at this institution.

Operational Definitions

1. Athlete - Any male individual at Waynesburg University who is considered a full time student in good standing and is an official member of the Varsity or Junior Varsity Football and Soccer Team.
2. Avoidance Coping - Removal from experiencing or thinking about a stressful situation.^{7,29,30,31,32,}
3. Brief Cope Questionnaire - A multidimensional coping inventory to assess the different ways in which people respond to stress. Five scales (of four items each) measure conceptually distinct aspects of problem focused coping (active coping, planning, suppression of competing activities, restraint coping, seeking of instrumental social support); five scales measure aspects of what might be viewed as emotion focused coping (seeking of emotional social support, positive reinterpretation, acceptance, denial, turning to religion); and three scales measure coping responses that arguably are less useful (focus on and venting of emotions, behavioral disengagement, mental disengagement).³¹
4. Board of Certification Certified Athletic Trainer (ATC) - “Are unique health care providers who specialize in prevention, assessment, treatment and rehabilitation of injuries and illness that occur to athletes and the physically active.”³⁴
5. Coach - The person on the team responsible for making decisions and for training the players for competition.³⁵
6. Coping - An individuals constantly changing cognitive and behavioral efforts to manage external and/or internal demands of a specific person-environment transaction that is appraised as stressful.^{7,9,10}
7. Emotion-focused coping - The modulation of emotional reactions and attitudes pertaining to a stressful situation.⁷
8. Problem Focused Coping - The active appraisal of a situation and the choice of weighted options in an attempt to change the situation.¹⁴

9. Quick Stress Questionnaire - A 25 item inventory, self reported, designed to quantify the levels and sources of stress within college students. It is based on a Likert scale of 1-9 while 1 is equivalent to little stress and 9 is associated with extreme stress.^{17,18}
10. Stress - A function of highly demanding situations coupled with the persons limited emotional resources for effectively coping with these demands.⁷
11. Stressor - Is a stimuli that an individual will than react to in either a positive or negative manner.¹⁸

Limitations

1. History - External factors may have affected the responses of some participants and therefore may threaten the internal validity of this study. Similarly, participants may have withdrawn from the study due to circumstances uncontrollable by this examiner, and therefore would not provide adequate data to compare to other sections, and further threaten the internal validity of the study.
2. Maturation - Internal validity may be threatened due to the active adaptations that may be taking place due to the time interval between testing sessions.
3. Testing - Internal validity threats may occur based on the reactive measurement tools, such as rating scales, which may change the event which the researcher is attempting to measure.
4. Reactive and interactive effects of testing - External validity may be threatened due to the repeated measure testing; as it may make the individual subjects more aware or sensitive to upcoming tests.
5. Multiple treatment interference - External validity may be threatened on subsequent examinations due to the effects of initial or previous examinations.
6. Selection of Participants - External validity may be threatened based on the choice of participants as a random group or an experimentally accessible group.

Significance of Study

Athletic Trainers are often considered the first line of defense for athletes of any level. They tend to develop and maintain strong professional and personal relationships with their athletes. While Athletic Trainers are prepared to deal with a host of medical issues, both emergent and non, they are not as well trained in recognition and

management of psychological issues. While curriculum based programs have focused more attention to these issues, the amount of first hand knowledge among educators is limited. Concomitantly, no identified experimental research specifically examines the levels of stress and mechanisms of coping within the athletic population have been undertaken in Athletic Training. As the levels of evidence based research are significantly lacking in this area, Athletic Trainers, coaches, sports psychologists and other allied health care professionals alike would potentially benefit from a study that compares and examines the types of stress and coping mechanisms of students and athletes. Similarly, by examining the stressor type and mechanisms of coping employed by freshman football and soccer athletes at the test university, as well as other universities, may implement specific programs and focus on making the transition from high school to college less stressful.

The fact remains that more and more athletes are presenting with psychological issues in today's world, and this only shows how limited Athletic Trainers are when it comes to assessing, treating, and/or referring such conditions. The significance of this study lies in the understanding that there is a lack of knowledge when understanding stress and coping mechanisms within our athletic population, and by better understanding the levels, types and frequencies of stressors, as well as the types of coping strategies employed by our athletes, we as Athletic Trainers can advance our knowledge as allied health care professionals. Ultimately, the goal of this research study is: to increase the current body of knowledge within Athletic Training, to perform a study that yields a factual depiction if freshman male athletes are more or less susceptible to stressors, and at the same time better educate and prepare not only veteran Certified Athletic Trainers, but

also our entry level Athletic Trainers as well, to provide and refer our athletes to the best health care possible.

APPENDIX B

LITERATURE REVIEW

Introduction:

Stress is an aspect of everyday life, and every person will experience different levels of, as well as react differently to stressors placed upon them. A majority of the studies that have focused on stress and coping have been directed towards students. The experience of stress is “likely to be a regular occurrence in the lives of new college students given the nature of the transition”.³⁶ Results from studies that have examined athletes have shown them to experience, and be associated with: improved self-esteem, body image, general mental health, and decreased levels of social anxiety, depression, stress and diabetes.^{23,24,25,26,27} However, no known studies exist that identifies and compares the stress levels of collegiate athletes at three time points during a competitive season.¹⁵ While other research suggests that athletes may experience more stress than their non- athlete peers,^{11,4} the research necessary to adequately determine the more at risk population is lacking.

Similarly, more attention has focused on the student population with regard to how they cope with the imposed stressors that result from the transition to university life. This unfamiliarity can challenge an individuals personal security, need for acceptance, need for comfort, social support network, and as a result many incoming freshman have difficulty adapting.^{19,20} The ability to cope effectively with stressors of any kind is imperative for successful performance in both the student and athlete population. However, “coping style has received scant attention in the sport psychology research literature to date”.^{12,13} Keeping this in mind, freshman collegiate athletes may experience

more stress than their student counterparts due to the added demand of sport participation. In this literature review, both coping and stress, as well as the questionnaires and surveys used to evaluate them, as well as the studies in this area will be discussed.

Stress

The definition of stress varies depending upon the literature. Atkinson et al.⁵ state that stress occurs when “a human being faces a situation in which the events are perceived by that person as dangerous, physically and psychologically”. Altunas⁶ defines stress simply as the frustrations that are brought about as the result of physical, mental, and emotional burdens. Still other researchers propose different explanations for stress. For instance, Lazarus and Folkman⁷ view stress as a function of highly demanding situations coupled with the persons limited emotional resources for effectively coping with these demands. Rabin⁸ describes stress as a condition in which there is a marked perceived discrepancy between demands on an individual and the individual’s ability to respond.

Regardless of the way stress is identified, the common ideology is that an individual who is experiencing stress will cope with that stress in a certain way, based on how that particular individual interprets the stressor. A stressor is any stimuli that an individual will react to in either a positive or negative manor.¹⁸ It is important to understand that all people will react to a given stressor in different ways. While some individuals react positively to stressors, others may implement negative strategies. Positive reactions may yield an increased work ethic, or cause them to assume leadership roles. Negative reactions will present much differently, however. Individuals who react

negatively may present as fatigued, irritable, having trouble sleeping, decreased immunity to cold and flu virus, and heightened nervousness.³⁵ Psychologically, these negative reactions may cause increased feelings of anxiety, depression, frustration, and forgetfulness.^{1,18,37}

Stressors that result from freshman collegiate life may be categorized as academic, financial, time or health related, social, and other life stressors.^{3,18} Academic stress may result from excessive homework, unclear assignments, uncomfortable classrooms, pressure to earn good grades, and complications with professors.^{1,18} Stilger et al.¹⁶ indicate that stress levels fluctuate throughout the course of an academic calendar and that October, December, and March were the most stressful months in regards to academics. Stress has been shown to impair academic function in two ways by one interfering with adaptive behaviors noted in studying or class attendance, and secondly by impeding vital cognitive processes like attention and concentration.^{18,38}

Additionally, students and athletes alike, at the Division III level, may not have access to the same amount and type of academic resources that larger institutions offer. Many of the Division I universities provide an abundant number of full time and part time tutors for both the student and athlete populations, and in many instances athletes are required to meet with tutors. This is not the case in the majority of smaller Division III institutions.

Financial stress occurs due to the nature of economic status. Some students are required to work during college in order to offset the cost of their education. In addition to tuition, and other college specific fees, freshman living expenses may also include rent for housing and related utility bills, food, transportation, entertainment, clothing, or any

other unplanned monetary responsibility such as necessary athletic gear not provided by the institution. Athletes potentially have more financial stress, especially those who are not on scholarship, because they do not have the time for a job.

Time and health related stressors may result from working or practicing too many hours, long road trips to competition, or becoming sick or injured. These freshman athletes have inadequate time to prepare for examinations, work on papers, or seek additional help in classes that are difficult.

Social stressors can be any interpersonal situation that is regarded by the individual as unfavorable. Negative interactions between the student or athlete and fellow students, friends, roommates, coaches, a boyfriend or girlfriend, or even family members can cause elevated levels of stress within that student or athlete.¹

Life stressors that may affect the student or athlete could be any negative event that happens throughout a persons lifetime. These events can be expected or unexpected, and may be caused by internal or external sources. Internal life stressors may be situations such as forced changes in sleep or eating habits, or even illness. External life stressors may include death of a family member or friend, parental divorce, marriage, pregnancy, sexual difficulties, or residential changes.²¹

In general, Akgun³⁹ proposes that adequate attention has been paid to the student population and the stressors imposed on them. Akgun³⁹ distributed two questionnaires to first year undergraduate students. Of all questionnaires distributed, only 141 students responded. Their results indicated that Grade Point Average (GPA) was impacted in those students who scored low on resourcefulness. Misra and McKean⁷ conducted a similar study in which they administered four self report questionnaires that addressed

academic stress, leisure satisfaction, time management, and trait and state anxiety. Results from the 249 undergraduate respondents show that students exhibited lower levels of stress when they perceived themselves to be in control of the situation. There was also lower academic stress when students demonstrated better time management skills.^{3,18}

Additionally, other studies have examined the link between psychological factors and risk of injury. Approximately 3.5 million sport and recreational injuries occur each year among American athletes.^{35,40,41,42,43} Injuries have the possibility to threaten the athlete's self-concept, belief system, social functioning, values, commitments, and emotional equilibrium.^{44,45} Still other important psychological resources that an athlete may lose include: the rewards of athletic participation, the social ties with team mates, and/or status on the team.^{44,45} In fact, after a thorough review of the literature related to life stressors and injury, Hanson et al.⁴⁶ conclude that "there seems to be sufficient research to warrant the conclusion that life stress is positively related to injury". Cryan and Alles⁴⁷ took interest in this topic in 1983. They conducted a study of 151 collegiate football players using the Social and Athletic Readjustment Rating Scale (SARRS) originally developed by Bramwell et al.⁴⁸ in 1975. Their study investigated the relationship between stress and change in a college football players life and the frequency with which they experience football related injuries. Results of this investigation indicated that players experiencing high life stress scores on the SARRS were more likely to sustain an injury than players experiencing low levels of stress. Furthermore, these athletes who experienced injury were more likely to receive more than one injury during the playing season. Most early research on this topic examined only those athletes who

participated in contact sports, and this was thought to be a limitation in the research base.⁴⁶ However, Hardy and Riehl⁴⁹ examined life stress and injury among male and female athletes participating in the sports of baseball, softball, tennis, and track. Although outcome measures are not presented in this research study regarding the study conducted by Hardy and Riehl,^{46,49} it was concluded that “total life change and negative life change were significant predictors of injury frequency, though not injury severity”.⁴⁶

Stress in athletics has been identified as a factor that predisposes athletes to injury. Largo-Wright et al.⁵⁰ report that chronic perceived stress results in a heightened state of prolonged physiological arousal, and that this in turn leads to physical exhaustion and ultimately to an increased risk of physical illness, disease, and injury in sport.

In a more recent review of research regarding psychological factors and risk of athletic injury, Williams and Anderson⁵¹ found some type of positive relationship between high life event stress and athletic injury in 27 of the 30 studies examined. Similarly, a critique of 20 life stress and athletic injury studies, Williams and Roepke,⁵² reported that injuries tend to occur two to five times more frequently in athletes with high, compared to low, life stress. Anderson and Williams²⁹ study in 1998 examined 79 male and 117 female athletes from Division I universities in the USA. Participants were from 10 sports including men’s and women’s gymnastics (n= 36), men’s and women’s swimming (n= 48), men’s and women’s cross country (n= 24), men’s and women’s track and field (n= 27), wrestling (n= 7), football (n= 2), baseball (n= 7), softball (n= 6), women’s volleyball (n= 21), and women’s basketball (n= 18). Participants completed three self-report instruments including the Life Events Survey for College Athletes (LESCA), the Social Support Questionnaire (SSQ), and the State Trait Anxiety Inventory

(STAI). The LESCA, developed by Petrie,⁵³ is a 69 item life events stress survey derived from Sarason et al's⁵⁴ Life Experience Survey. The LESCA supplies three life events scores: negative (sum of negative scores), positive (sum of positive scores), and total (sum of absolute values of positive and negative scores) with a test-retest correlation ranging from .76 to .84 for week 1 and from .48 to .72 for 8 weeks. The SSQ is a 27 item survey developed by Sarason et al⁵⁴ and has an alpha coefficient of .85 and test-retest correlation of .89. Results of Anderson and Williams study concluded that negative life events contributed significantly to the prediction of the number of injury events ($r = .44$, $P < .001$).

Regardless of sport participation, review of current literature suggests that athletes who experience more negative life stressors are predisposed for incurrence of athletic injury of any severity. While this research study does not seek to examine the relationship between life stressors and injury, the significance of this relationship cannot be ignored. Since this research study does seek to examine an athletes level of perceived stress, it may be assumed that athletes who present to be experiencing higher levels of stress and who may cope negatively with that stress may be exposing themselves to increased injury frequency. Ultimately, this research study may yield beneficial findings that, when dealt with in a timely manner by coaches, athletic trainers, or psychologists of any kind, may serve to reduce the risk of injuries that may occur from elevated levels of life stress.

Coping Strategies

As was previously mentioned with regards to stress, coping has as many interpretations. Lazarus and Folkman^{3,9,10} describe coping as “the changing thoughts and actions that an individual uses to manage the external and/or internal demands of a

specific person-environment transaction that is appraised as stressful”. Simply put, coping is the process of dealing with situations that create stress.⁵ Adequate attention has been paid to the transitional stressors and mechanisms of coping that affect students making the transition to collegiate life. The athletic population, however, has received scant attention in the literature to date.^{12,13} Coping processes employed by students and athletes vary tremendously, but have been largely identified in the literature to fall into one of three categories. These are problem-focused, emotion-focused, and avoidance style coping mechanisms.^{3,7,14,29,30,31,32,56}

Problem-focused coping: Defined as the active appraisal of any given situation and the choice of weighted options in an attempt to change the situation,¹⁴ problem-focused coping consists of all efforts an individual will employ to act on a stressful situation in order to achieve a task objective.⁵⁶ According to Auerbach,⁵⁷ this type of coping involves “short-circuiting negative emotions through the emission of behaviors that modify the stressor, allow one to avoid it or minimize its impact, and cognitive activity that leads to the belief that the stressor can or will be controlled instrumentally”. Ultimately, problem focused coping is that particular individuals’ attempt to change the relationship between themselves and the stressor, through formal actions. Some of the actions most commonly seen are the changing of goals, seeking out social support, or being vocally assertive.³³ Sport specific examples would include actions such as changing or employing sport specific skills, seeking medical treatment, or communication with a coach or game official about concerns.

Emotion-focused coping: Emotion-focused coping is the modulation of emotional reactions and attitudes pertaining to a stressful situation.^{3,7} It is important to note that

both problem and emotion focused coping are regarded to be positive mechanisms of coping.⁷ Emotion focused coping consists of efforts to regulate emotional stress associated with or resulting from the stressor.⁵⁸ Endler and Parker³² refer to this type of coping as “person orientation”. This may be a more appropriate way to regard emotion focused coping since it deals with how the individual interprets, or appraises, the stressor. Individuals may attempt to change the stressors meaning.³³ In athletics an individual may experience stress as a result of being removed from the competition by a coach, and will in turn emotionally cope with this stressor by changing the initial intent of the removal from the game. Perhaps, they will convince themselves that the coaches observed that particular athletes level of fatigue, and thus removed him or her to rest. Other emotion focused coping methods include positive self talk, imagining successful skill completion, and mental relaxation.³²

Avoidance coping: Individuals who remove themselves from thinking about or experiencing a stressful situation are defined by researchers as implementing avoidance style coping mechanisms.^{7,29,30,31,32} Avoidance coping is often considered maladaptive because it does not lead to a resolution of the stressor²⁹ and have been associated with negative outcomes for individuals.⁵⁹ It may employ the use of wishful thinking, self-distraction, denial, or mental or behavioral disengagement.⁷ This type of coping is believed to exacerbate the present stressor, prolong negative life events, and elevate the sense of threat that is associated with a stressful event. While problem focused and emotion focused coping strategies are regarded as “adaptive” styles of coping, avoidance strategies are regarded as a negative method of coping and may lead to alcohol²⁹ or other substance abuses, smoking cigarettes, excessive eating, or a combination in order to cope

with stress.

Avoidance coping is not entirely negative, however. This type of coping mechanism is thought to be preferable when emotional resources are limited, the source of stress is not clear, the situation is uncontrollable, or outcome measures are immediate or short-term.⁷ In sport the speed of the game may not allow for a problem or emotion focused means of coping, so avoiding the stress all together or psychologically distancing oneself from that stressor may be the optimal mechanism.

With regard to sport Anshel et al.⁵⁶ suggest that the coping styles of athletes reflect four distinct types. These are: 1) problem-focused approach such as physical confrontation or information seeking; 2) problem-focused avoidance such as rapid subsequent task execution; 3) emotion-focused approach such as the covert rehearsal of an error; and 4) emotion-focused avoidance such as immediate planning of the next task.

Misra and McKean^{7,18} found that time management behaviors and feelings of being in control of stressful situations actually reduced stress levels in the 249 full time undergraduate students included in this research.

In a study performed by Deniz,⁶⁰ a significant positive relationship between life satisfaction and problem-focused coping ($r = .19, p < .001$) was found among 492 students from Selcuk University in Konya Turkey. This result suggests that individuals who are identified as having, and/or regard themselves as living a satisfactory life, will effectively cope with stressors in a positive manner. In that same study, Deniz⁶⁰ found that there is also a significant positive relationship between avoidance style coping and “buck-passing” ($r = .19, p < .05$), procrastination ($r = .15, p < .05$), and hyper-vigilance ($r = .18, p < .001$). This seems to suggest that individuals who employ avoidance style stressors,

often resort to negative methods of coping by either passing stressors off onto others, avoiding required tasks, or simply becoming overly sensitive.

Dyson and Renk³⁶ examined the coping strategies that were employed by collegiate freshman students in response to stressors that were placed on them. Seventy four college freshman (23 male, 51 female), ranging in age from 18-22 years of age ($18.47 \pm .71$ years) from a southeastern university participated in the study. They reported that college students levels of stress significantly predicted problem focused coping, $F_{6,67} = 4.21, p < .001$. In particular masculinity was a particularly strong predictor of problem focused coping. College students stress also significantly predicted emotion focused coping, $F_{6,67} = 3.33, p < .006$. In this study only students who expressed femininity as a major characteristic significantly predicted the employment of emotion focused coping strategies ($p < .0008$) College student stressors did not, however, predict significantly the levels of avoidant coping strategies, $F_{6,67} = 1.99, p < .08$.

Additionally, a study by Pritchard and Wilson,²² examined whether or not freshman students changed their coping styles in the first semester of college, reported similar results. A survey of 239 freshman, using the Breif Cope instrument¹⁷ reported that females employed more emotion focused coping strategies $F(1,232) = 10.35, p < .001$. This study however reported that males ($2.44 \pm .52$) employed more emotion focused coping strategies as the semester progressed.¹⁷ Men will employ more emotion focused strategies towards the end of the first semester, and stray away from the typical problem focused coping mechanism, possibly because this semester challenges them to deal with many new life stressors for which they have never been exposed.²² The athletic population, as has been mentioned previously in this as well as other literature, has

received very little attention with respect to stress and coping.

It has been reported that a history of many negative life events, together with low social support, may leave athletes with less than optimal resources to handle and cope with stress.⁶¹ Ultimately these stressors, which leave the athlete in a heightened state of psychological arousal and physical fatigue, will combine with their inability to cope efficiently and leave them prone to injury.

Coping Response Questionnaires

Many measures of coping are currently in widespread use.¹⁷ Folkman and Lazarus¹⁴ developed the Ways of Coping Checklist (WCC), which was later re-examined and adapted into the Ways of Coping Questionnaire. Initially in 1980, Folkman and Lazarus^{14,32} comprised a 68 item questionnaire which required that subjects respond with either a “yes” or “no”. With respect to the two main sub groupings of coping strategies, problem and emotion-focused, they reported internal consistency reliabilities of .80 for problem-focused, and .81 for emotion-focused coping.

Later in 1988, after extensive analysis, the WCC was changed from a 68 item yes or no format questionnaire into a Likert scale response inventory called the Ways of Coping Questionnaire (WCQ).^{32,62} The authors report internal consistency reliabilities to be moderate, ranging from .56 to .85.

Endler and Parker³² developed the Multidimensional Coping Inventory (MCI). In its initial stages seven psychologists and graduate students in psychology developed a list of 120 items that covered coping behaviors.³² This list was gradually shortened to 70 items by eliminating redundant items. A group of 64 undergraduate students completed the (MCI) on two separate occasions 8 weeks apart. The test-retest correlation for MCI

Task, Emotion, and Avoidance subscales were .74, .66, and .68 respectively. “The moderate test-retest correlation indicates that the subscales are relatively stable”.³³

Tobin et al.⁶³ were responsible for the Coping Strategies Inventory. Billings and Moos³⁰ developed a 19- item coping-response inventory which measures active cognitive, active behavioral, and avoidance type coping mechanisms. They reported moderate internal consistencies of .72 for active cognitive, .80 for active behavioral, and .44 for avoidance coping strategies as they are reportedly implemented by the athletes.⁶⁴ Although all the aforementioned inventories differ from one another in their own respects, they all assess both problem focused coping strategies and focus on the responses to the situation, and neglect to examine the stressor itself.

The Brief Cope Questionnaire (BCQ) was developed by Carver and colleagues for three distinct reasons. Initially, none of the preexisting measures sampled all of the specific domains that they felt were of theoretical interest. Second, preexisting scales seemed to suffer to a greater or lesser degree from a lack of clear focus among content items, and finally, the items contained in preexisting scales were chosen initially as being diverse and representative examples of potential coping responses, not because they represented theoretically interesting categories of coping.³¹

The Brief COPE questionnaire is a short form of Carvers’ previously published measure called The COPE Inventory, which has proven to be useful in health related research.¹⁷ In a study conducted by Antoni et al. in 1991, denial and behavioral disengagement were found as prospective predictors of distress among HIV-positive males.¹⁷ With respect to physiological endpoints, Ironson et al. in 1994 implemented The Brief COPE Questionnaire in a similar study and found that denial and behavioral

disengagement, in response to HIV positive diagnosis, predicted greater disease progression one year later.¹⁷

Carvers' full COPE inventory is a 60- item instrument with 4 items per scale. Carver et al.⁶⁵ found that samples become impatient with the full COPE because of its redundancy and length. The Brief Cope, on the other hand, is a multidimensional coping inventory to assess the different ways in which people respond to stress. Five scales, of four items each, measure conceptually distinct aspects of problem focused coping (active coping, planning, suppression of competing activities, restraint coping, seeking of instrumental social support). Five scales, of one item each, measure aspects of what might be viewed as emotion focused coping (seeking of emotional social support, positive reinterpretation, acceptance, denial, turning to religion). An additional three scales, of one item each, measure coping responses that arguably are less useful (focus on and venting of emotions, behavioral disengagement, mental disengagement) for a combined total of 8 questions.^{17,27}

Internal structure of the BCQ was evaluated using an exploratory factor analysis on the item set using an oblique rotation to permit correlations. Nine factors had eigen values greater than 1.0 which accounted for 72.4% of the variance in responding. Results indicated that the structure was conceptually consistent to that reported for the full inventory. Analysis produced reliabilities at or above .50 (α =.50-.90), which supported the internal validity of the abbreviated scales.¹⁸ The questionnaire was estimated to take about 5-10 minutes to complete.^{17,18}

Quick Stress Questionnaire

Assessment of stress levels in college students is a topic that is often examined by

researchers,¹ and there are many different inventories to choose from depending on your sample population and examination goals. In a study performed by Misra and McKean⁷ to assess the academic stress of college students, four separate inventories were used. Initially they employed the Gadzella⁶⁶ Student Life Stress Inventory (SLSI) in order to assess the students perceived academic stress and reactions to that stress. This inventory contains 52 items on a 1 to 5 Likert type scale where 1 = never true and 5 = always true. Secondly, they used the Leisure Satisfaction Measurement (LSM), designed by Beard and Ragheb,⁶⁷ to measure students leisure satisfaction. This 51 question Likert scale type questionnaire assesses six leisure satisfaction components: psychological benefits, educational benefits, social benefits, relaxation benefits, physiological benefits, and aesthetic-environmental rewards. Beard and Ragheb,⁶⁷ reported a reliability of .93 for the LSM. Following this scale, Misra and McKean⁷ employed Time Management Behaviors scale devised by Macan⁶⁸ et al. which was used to assess students time management behaviors. This instrument contained 46 items on a Likert type scale ranging from 1 (seldom true) to 5 (very often true). This inventory measures four subscales of time management. The subscales and their Chronbach alpha scores are as follows: perceived control of time (.67), setting goals and priorities (.84), mechanics of time management (.85), and preference of organization (.80). Finally Misra and McKean⁷ implemented the State-Trait Anxiety Inventory form Y (STAI-I) designed by Spielberger⁶⁹ to assess the anxiety of students as both an emotional state and as a personality trait. Trait anxiety implies differences between people in the disposition to respond to stressful situations with varying amounts of state anxiety. The STAI-Y is a 40 item self-report Likert type measurement, for which the reliability and validity have been widely reported, but

according to Misra and McKean⁷ has shown an internal consistency of .91 for state anxiety absence, .82 for state anxiety presence, .80 trait anxiety absence, and .78 for trait anxiety presence.

Still other stress focused questionnaire based inventories exist, and have been utilized among researchers. For instance, Towbes and Cohen⁷⁰ created the College Chronic Life Stress Survey, and from this they examined the frequency of chronic stress in the lives of college students. Similar studies, such as Gadzella's Student Life Stress Survey (SLSI) and Spielbergers' State- Trait Anxiety Inventory Form Y (STAI-Y), have been implemented to examine stress levels and frequencies among both the graduate and undergraduate population. Ross⁵ developed the Student Stress Survey based off the Student Stress Scale by Insel and Roth in 1985 and the Taylor Manifest Anxiety Scale from 1953.

The Quick Stress Questionnaire, however, is a 25 item inventory, self reported, designed to quantify the levels and sources of stress within college students. It is based on a Likert scale of 1-9 where 1 is equivalent to little stress and 9 is associated with extreme stress.¹⁸ Support for the QSQ's construct validity has been established through Maximum Likelihood Factor Analysis (MLFA), which revealed that the 9 stress source items loaded (loading reflects the extent of a relationship between each observed variable and each factor) on a single stress source factor. Maximum likelihood factor analysis also identified 3 symptom factors that were labeled cognitive, somatic, and behavioral. Cognitive, somatic, and behavioral factors using Omega coefficient estimates of internal validity were observed to be .89, .83, and .79 respectively.^{16,18,71}

Stilger et al.¹⁶ implemented the Quick Stress Questionnaire at a mid-Atlantic

National Collegiate Athletic Association Division I college to 43 undergraduate athletic training students. Their study had three purposes: 1) identify the sources of stress that student athletic trainers face regularly and the types of stress symptoms they experience over the course of an academic year; 2) investigate the existence of possible gender differences between stress sources and symptoms; and 3) provide suggestions for athletic training staffs and helping professionals on how to assist this population. Only 20 (11 male, 9 female) of the original 43 provided suitable data for examination.¹⁶

Results of this study showed that academics (Males, 5.36 ± 1.55 ; Females, 6.39 ± 1.46) and financial concerns (Males, 5.51 ± 1.90 ; Females, 6.63 ± 1.87) were the primary sources of stress for both male and female student athletic trainers, and that all stress levels as indicated by questions 1-8 of the QSQ, with the exception of family concerns, were found to fluctuate significantly ($F_{7,15} = 1.80$, $P = .093$) over the course of the academic year. Other notations made by Stilger et al.¹⁶ were that “relative to cognitive stress, both male and female student athletic trainers reported apprehension, fear, and worry.” Perhaps more notably Stilger et al.¹⁶ noted that males in particular reported thoughts of anger and hostility, sleep disturbances, insomnia, troublesome dreams, excess muscle tension, and headaches.

Stilger et al.¹⁷ concluded by stating that “The time demands placed upon student athletic trainers in combination with daily life stressors confronting them as college students (eg, academic pressures, financial concerns) may lead to considerable distress that can affect health and functioning.” Athletic training students lead lives very similar to that of the collegiate athlete, so it can be assumed that out athletes, who are also striving for success in the classroom, acceptance from coaches and players, and who have

their own host of personal responsibilities place on their athletic lives, would be as prone to the same health and functional state of distress.

Summary

To summarize, stress, which is the result of acute academic, financial, time or health related, social, and other life stressors, requires that the individual employ coping mechanisms to manage that stress. Levels of stress and the coping mechanisms employed by each individual vary greatly, but are typically either problem-focused, emotion-focused, or avoidant in nature. While research with regards to stress and coping within the student population in a collegiate setting exists, comparable levels of research on acute stress in the sport psychology literature are lacking. Various questionnaire inventories exist to measure levels of stress and mechanisms of coping, yet the Brief COPE and Quick Stress questionnaires have recently become inventories of choice for researchers due to their reliability, validity, and promptness. No known studies have examined the stressors and coping mechanisms of male freshman football and soccer athletes at the same time over three time points in their first semester of collegiate life. Athletic participation requires additional time commitments, places individuals in a competitive social environment, and is physically taxing on the body. Combined with the rigors of full time academia, new living arrangements, and lack of strong interpersonal relationships or family contact, the athlete is placed under considerable amounts of stress. This stress level, like that of the athletic training student in the study performed by Stilger et al. is placing athletes in a predisposed state for health and functional distress.

APPENDIX C

ADDITIONAL METHODS

Table C1. Initial E-Mail

You are being asked to participate in a research study conducted by Gregory A White, ATC, a graduate student at West Virginia University to evaluate the levels of stress experienced and the types of coping strategies used to alleviate the stress. As a college male freshman you may be experiencing new levels of stress while as a football or soccer athlete there may be stress and the additional stress of being involved with athletics. You will be asked to complete two questionnaires at three different time points. Both questionnaires should take approximately 15-20 minutes each to complete with a total examination time of no longer than 30-40 minutes. There is very little information in the literature evaluating stress and coping with male college freshman and male freshman football and soccer athletes. Furthermore, this research study will help to make you more aware of your stress levels and what you are doing to cope with this stress level. I respectfully request that you participate in this research study, as it could be very beneficial for the academic and athletic communities alike to further their knowledge and understanding of the levels of stress and mechanisms of coping in the male freshman population. If you are interested in participating in this study, please attend an organizational meeting at the Waynesburg University Stewart Hall room 201 on...

Thank you,

Gregory A White, ATC

Table C2. Cover Letter

Dear Student,

This message is a request for you to participate in a research study being conducted by the primary investigator (PI) Michelle A. Sandrey PhD, ATC and Co-PI Gregory White, a Graduate Athletic Training student. Both are affiliated with West Virginia University. Participation will require you to answer two questionnaires at three randomly designated times during the first semester of your freshman academic year at Waynesburg University. The main purposes of this study are to: a) identify and compare the levels of stress in both the athlete and student male freshman population; b) identify and compare the mechanisms and methods of coping with stressors in both the male athlete and student population and; c) to educate and provide suggestions to the athletic staff members on how to better recognize, manage, and refer individuals in the athletic population dealing with stressful events for proper intervention and care. This thesis is being completed to partially fulfill requirements for the completion of a Master of Science Degree in Athletic Training at West Virginia University.

There will be two questionnaires: the first is the Quick Stress Questionnaire (QSQ). This includes 24 multiple choice questions graded on a Likert scale ranging from 1-9, and a blank section following each question for you to include a brief optional comment. The second will be the Brief Cope Questionnaire (BCQ). This includes 28 multiple choice type questions grades on a Likert scale ranging from 1-4 with an optional "No Response" selection. You do not have to answer all the questions and your status on the team or academic standing will not be affected if you decide not to participate. You may withdraw from the study at any time. Both questionnaires should take approximately 15-20 minutes each to complete with a total examination time not to exceed 30-40 minutes. If you experience emotional stress while completing the questionnaire, please contact Student Health at Waynesburg College.

Your involvement in this questionnaire survey will be kept completely anonymous for the duration of the study. I will not ask you to include your name on any of the materials in this survey nor will I present any information at any time that could allow for individual participants to be identified.

I respectfully request that you participate in this study, as it could be very beneficial for the academic and athletic communities alike to further their knowledge and understanding of the levels of stress and mechanisms of coping in the male freshman population. I would like to thank you very much for your time. If you should have any questions regarding this letter, questionnaires, or study in general, please feel free to contact me Gregory A. White ATC at (860)-460-0732 or white@waynesburg.edu or Dr. Michelle Sandrey at (304)-293-3295 ext 5220 or msandrey@mail.wvu.edu.

Thank you very much, in advance, for your participation in this study.

Sincerely,

Gregory A White, ATC

*WVU IRB acknowledgement/approval of this study is on file

Table C3. Demographic Questionnaire

1. Age: _____

2. Are you a varsity athlete at Waynesburg College?

YES NO

3. If YES, what sport are you affiliated with?

SOCCER FOOTBALL

4. If NO, are you a member of any Club or Intramural sports team?

YES NO

5. If YES, what Club or Intramural sports team are you affiliated with? (please list)

6. If NO, do you engage in regular physical activity? (i.e. running, weightlifting, boxing, swimming, etc.)

YES NO

7. If YES, How many times per week? (Number of days)

8. About how long do you engage in this physical activity per session? (in minutes)

9. Do you engage in physical activity to relieve feelings of stress?

YES NO

10. If YES, do you feel as though your stress is relieved upon completion of physical activity?

YES NO

Table C 4. Quick Stress Questionnaire (QSQ)

WVU/CPSC Quick Stress Questionnaire

For the purpose of this questionnaire, stress is defined as the total combination of life pressures, demands, hassles, frustrations, disappointments, environmentally and self-imposed tasks and deadlines that you perceive, react to, and feel. Select the number that represents your stress level and briefly explain it in the comment field below the areas that you feel are most stressful for you.

1. Academic or work concerns:	6
1 (Little)	7
2	8
3	9 (Extreme)
4	No response
5 (Moderate)	Comments
6	
7	
8	5. Self-Image:
9 (Extreme)	1 (Little)
No response	2
Comments	3
	4
	5 (Moderate)
2. Social/Personal Relationships:	6
1 (Little)	7
2	8
3	9 (Extreme)
4	No response
5 (Moderate)	Comments
6	
7	6. Health Concerns:
8	1 (Little)
9 (Extreme)	2
No response	3
Comments	4
	5 (Moderate)
3. Family Concerns:	6
1 (Little)	7
2	8
3	9 (Extreme)
4	No response
5 (Moderate)	Comments
6	
7	
8	
9 (Extreme)	
No response	
Comments	
4. Financial Concerns:	
1 (Little)	
2	
3	
4	
5 (Moderate)	

7. Sexual Concerns:

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

6
7
8
9 (Extreme)
No response
Comments

8. Day-to-Day Hassles:

1 (Little)
2
3
4
5 (Moderate)

9. Other:
1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

People react to stress in various ways. How do you react? (Rate on the scales below.) Please rate all scales by blackening the number that best represents your own reaction(s). Also, for each list of reactions, enter the ones that are most typical or troubling for you in the comment field.

10. Feelings of depression, hopelessness, powerlessness, and/or poor self-esteem

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

11. Anger, hostility, irritability, and/or resentment

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

13. Muscle tension, headaches, backaches, and/or muscle aches

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

12. Apprehension, fears, and/or worrying

14. Indigestion, stomachache, diarrhea, ulcer attacks, constipation, and/or colitis

1 (Little)
2
3
4
5 (Moderate)
6
7
8

9 (Extreme)
No response
Comments

15. Tics, tremors, and/or muscle spasms

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

16. Sleeping disturbances, insomnia, oversleeping, night awakening, and/or troublesome dreams

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

17. Eating disorders, overeating, and/or under eating

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

18. Excessive drinking and/or use of drugs (including nicotine and caffeine)

1 (Little)
2
3
4
5 (Moderate)
6
7
8

9 (Extreme)
No response
Comments

19. Forgetfulness, mental inefficiency, inability to study, and/or lack of motivation

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

20. Hypertension (high blood pressure)

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

21. Acne, eczema, hives, breaking out, and/or skin blotching and skin blanching

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

22. Avoidance behavior (e.g. procrastination, escapism, TV watching, excessive partying, class cutting, absenteeism)

1 (Little)
2
3
4
5 (Moderate)
6

7
8
9 (Extreme)
No response
Comments

23. Overall level of stress and anxiety at this time

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

24. Overall stressors (studies, jobs, etc.) this year in comparison to those of last year
1 (Little)

2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

25. Your level of stress when you first sought counseling or treatment (ignore if not applicable)

1 (Little)
2
3
4
5 (Moderate)
6
7
8
9 (Extreme)
No response
Comments

Table C5. Brief COPE Questionnaire (BCQ)

Select the number that corresponds to how you've been coping with your stress as it relates to the given situation.

1. I've been concentrating my efforts on doing something about the situation I'm in.	3
1 - I haven't been doing this at all	4 - I've been doing this a lot
2	No response
3	
4 - I've been doing this a lot	8. I've been learning to live with it.
No response	1 - I haven't been doing this at all
	2
	3
2. I've been taking action to try to make the situation better.	4 - I've been doing this a lot
1 - I haven't been doing this at all	No response
2	
3	9. I've been making jokes about it.
4 - I've been doing this a lot	1 - I haven't been doing this at all
No response	2
	3
	4 - I've been doing this a lot
	No response
3. I've been trying to come up with a strategy about what to do.	
1 - I haven't been doing this at all	10. I've been making fun of the situation.
2	1 - I haven't been doing this at all
3	2
4 - I've been doing this a lot	3
No response	4 - I've been doing this a lot
	No response
4. I've been thinking hard about what steps to take.	11. I've been trying to find comfort in my religion or spiritual beliefs.
1 - I haven't been doing this at all	1 - I haven't been doing this at all
2	2
3	3
4 - I've been doing this a lot	4 - I've been doing this a lot
No response	No response
	12. I've been praying or meditating.
5. I've been trying to see it in a different light, to make it seem more positive.	1 - I haven't been doing this at all
1 - I haven't been doing this at all	2
2	3
3	4 - I've been doing this a lot
4 - I've been doing this a lot	No response
No response	
	13. I've been getting emotional support from others.
	1 - I haven't been doing this at all
6. I've been looking for something good in what is happening.	2
1 - I haven't been doing this at all	3
2	4 - I've been doing this a lot
3	No response
4 - I've been doing this a lot	
No response	
	14. I've been getting comfort and understanding from someone.
7. I've been accepting the reality of the fact that it has happened.	1 - I haven't been doing this at all
1 - I haven't been doing this at all	2
2	

3
4 - I've been doing this a lot
No response

15. I've been trying to get advice or help from other people about what to do.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

16. I've been getting help and advice from other people.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

17. I've been turning to work or other activities to take my mind off things.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

18. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

19. I've been saying to myself "this isn't real."
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

20. I've been refusing to believe that it has happened.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

21. I've been saying things to let my unpleasant feelings escape.
1 - I haven't been doing this at all
2

3
4 - I've been doing this a lot
No response

22. I've been expressing my negative feelings.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

23. I've been using alcohol or other drugs to make myself feel better.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

24. I've been using alcohol or other drugs to help me get through it.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

25. I've been giving up trying to deal with it.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

26. I've been giving up the attempt to cope.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

27. I've been criticizing myself.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

28. I've been blaming myself for things that happened.
1 - I haven't been doing this at all
2
3
4 - I've been doing this a lot
No response

APPENDIX D

ADDITIONAL RESULTS

Table D1 Demographic Questionnaire Results For Physical Activity

YES, How many times per week? (Number of days)	0 days = 1.2% (n=1) 1 day = 0% (n=0) 2 days = 0% (n=0) 3 days = 2.5% (n=2) 4 days = 6.2% (n=5) 5 days = 22.2% (n=18) 6 days = 14.8% (n=12) 7days = 27.2% (n=22) 14 days = 1.2% (n=1)
8. About how long do you engage in this physical activity per session? (in minutes)	20 minutes = 1.2% (n=1) 30 minutes = 2.5% (n=2) 60 minutes = 19.8% (n=16) 75 minutes = 1.2% (n=1) 90 minutes = 9.9% (n=8) 120 minutes = 19.8% (n=16) 150 minutes = 1.2% (n=1) 160 minutes = 2.5% (n=2) 180 minutes = 12.3% (n=10) 210 minutes = 1.2% (n=1) 360 minutes = 1.2% (n=1)

Table D2 Quick Stress Questionnaire Results

Question	F value	P	ES	β -1	Mean/SD PRE	Mean/SD MID	Mean/SD POST
1. Academic or work concerns	.179	.836	.004	.077	5.05 $\pm$ 2.20	5.28 $\pm$ 1.93	5.05 $\pm$ 1.93
2. Social Personal Relationships	3.874	.025*	.084	.686	4.91 $\pm$ 2.41	4.51 $\pm$ 2.16	3.67 $\pm$ 1.87
4. Financial Concerns	.595	.563	.028	.140	4.36 $\pm$ 1.96	4.55 $\pm$ 2.29	4.05 $\pm$ 2.12
23. Overall level of stress and anxiety at this time	1.043	.362	.022	.220	3.94 $\pm$ 2.31	3.88 $\pm$ 2.13	4.28 $\pm$ 2.14
24. Overall stressors (studies, Jobs, etc.) this year in comparison To those of last year	.173	.841	.004	.076	4.16 $\pm$ 2.10	4.35 $\pm$ 2.05	4.42 $\pm$ 1.97

*Significant p=0.05

Table D3 Pairwise Comparison Results – Quick Stress Questionnaire

Question	Pre-test/Mid-test	Mid-test/Post-test	Pre-test/Post-test
1. Academic or work concerns	t=-1.59, p=.12	t=.59, p=.59	t=.00, p=1.00
2. Social Personal Relationships	t=1.10, p=.28	t=1.72, p=.09	t=2.75, p=.01*
4. Financial Concerns	t=-.09, p=.94	t=1.15, p=.26	t=.62, p=.54
23. Overall level of stress and anxiety at this time	t=-.19, p=.85	t=-1.31, p=.19	t=-.46, p=.65
24. Overall stressors (studies, Jobs, etc.) this year in comparison to those of last year	t= 1.11, p=.27	t=-.14, p=.89	t=-.53, p=.59

* Significant p = 0.05

Table D4. Quick Stress Questionnaire Other Means and Standard Deviation values

<u>test</u>	<u>Mean/SD Pre-test</u>	<u>Mean/ SD Mid-test</u>	<u>Mean/SD Post-</u>
3. Family Concerns	4.63 $\pm$ 2.19	4.21 $\pm$ 2.19	3.84 $\pm$ 2.18
5. Self-Image	3.73 $\pm$ 2.38	3.72 $\pm$ 1.96	3.42 $\pm$ 1.78
6. Health Concerns	3.90 $\pm$ 2.53	3.25 $\pm$ 2.09	3.26 $\pm$ 1.97
7. Sexual Concerns	3.72 $\pm$ 2.75	3.27 $\pm$ 2.27	3.19 $\pm$ 2.15
8. Day-to-Day Hassles	3.93 $\pm$ 1.66	3.88 $\pm$ 1.79	3.74 $\pm$ 1.61
9. Other	4.00 $\pm$ 2.91	3.28 $\pm$ 1.66	3.44 $\pm$ 2.46
Reactions to stressors			
10. Feelings of depression, Hopelessness, powerlessness, and/or poor self esteem	2.68 $\pm$ 1.84	2.92 $\pm$ 1.87	2.76 $\pm$ 1.99
11. Anger, Hostility, Irritability, And/or resentment	3.90 $\pm$ 2.58	3.76 $\pm$ 2.10	3.35 $\pm$ 2.05
12. Apprehension, Fears, and/or Worrying	3.84 $\pm$ 2.11	3.24 $\pm$ 1.88	3.26 $\pm$ 1.73
13. Muscle tension, Headaches, Backaches, and/or muscle aches	3.72 $\pm$ 2.18	3.69 $\pm$ 2.02	3.63 $\pm$ 2.06
14. Indigestion, stomachache, Diarrhea, ulcer attacks, Constipation, and/or colitis	2.21 $\pm$ 1.87	2.24 $\pm$ 1.38	2.33 $\pm$ 1.85
15. Ticks, Tremors, and/or Muscle spasms	2.03 $\pm$ 1.86	2.28 $\pm$ 1.88	2.07 $\pm$ 1.75
16. Sleeping disturbances, Insomnia, oversleeping, night awakening, and/or troublesome Dreams.	3.11 $\pm$ 2.24	3.12 $\pm$ 2.09	3.02 $\pm$ 2.08
17. Eating disorders, overeating, and/or under eating	2.06 $\pm$ 1.70	2.27 $\pm$ 1.95	2.14 $\pm$ 1.41
18. Excessive drinking and/or use of drugs (including nicotine and caffeine)	2.47 $\pm$ 2.09	2.66 $\pm$ 2.38	3.02 $\pm$ 2.66
19. Forgetfulness, mental Inefficiency, inability to study, and/or lack of motivation.	3.26 $\pm$ 2.50	3.61 $\pm$ 2.36	3.44 $\pm$ 2.12
20. Hypertension (high blood pressure)	2.15 $\pm$ 1.89	2.26 $\pm$ 1.73	2.16 $\pm$ 1.99

21. Acne, eczema, hives, breaking out, and/or skin blotching and skin blanching	2.65 ± 2.19	2.76 ± 2.19	2.69 ± 2.04
22. Avoidance Behavior (e.g. Procrastination, escapism, TV watching, Excessive partying, class cutting, absenteeism)	2.89 ± 2.15	3.83 ± 2.49	3.79 ± 2.64
25. Your level of stress when you first sought counseling or treatment (ignore if not applicable)	2.80 ± 1.48	5.20 ± 3.19	3.00 ± 3.94

Table D5. Quick Stress Questionnaire Percentages of Responses (Pre-Test)

	LOW			MODERATE			HIGH			NO COMMENT
	1	2	3	4	5	6	7	8	9	10
1	12.3% (n=10)	4.9%(n=4)	7.4%(n=6)	11.1%(n=9)	25.9%(n=21)	8.6%(n=7)	17.3%(n=14)	8.6%(n=7)	2.5%(n=2)	1.2%(n=1)
2	16%(n=13)	8.6%(n=7)	8.6%(n=7)	13.6%(n=11)	21%(n=17)	6.2%(n=5)	13.6%(n=11)	6.2%(n=5)	6.2%(n=5)	0
3	12.3%(n=10)	7.4%(n=6)	14.8%(n=12)	13.6%(n=11)	18.5%(n=15)	9.9%(n=8)	12.3%(n=10)	8.6%(n=7)	2.5%(n=2)	0
4	12.3%(n=10)	7.4%(n=6)	13.6%(n=11)	12.3%(n=10)	30.9%(n=25)	4.9%(n=4)	7.4%(n=6)	2.5%(n=2)	7.4%(n=6)	0
5	25.9%(n=21)	17.3%(n=14)	6.2%(n=5)	6.2%(n=5)	22.2%(n=18)	6.2%(n=5)	9.9%(n=8)	3.7%(n=3)	2.5%(n=2)	0
6	22.2%(n=18)	14.8%(n=12)	16.0%(n=13)	7.4%(n=6)	14.8%(n=12)	6.2%(n=5)	4.9%(n=4)	7.4%(n=6)	6.2%(n=5)	0
7	29.6%(n=24)	14.8%(n=12)	13.6%(n=11)	3.7%(n=3)	11.1%(n=9)	1.2%(n=1)	12.3%(n=10)	2.5%(n=2)	7.4%(n=6)	1.2%(n=1)
8	9.9%(n=8)	9.9%(n=8)	23.5%(n=19)	13.6%(n=11)	25.9%(n=21)	12.3%(n=10)	4.9%(n=4)	0	0	0
9	22.2%(n=18)	12.3%(n=10)	13.6%(n=11)	6.2%(n=5)	16.0%(n=13)	1.2%(n=1)	3.7%(n=3)	2.5%(n=2)	1.2%(n=1)	9.9%(n=8)
10	35.8%(n=29)	19.8%(n=16)	13.6%(n=11)	11.1%(n=9)	9.9%(n=8)	1.2%(n=1)	4.9%(n=4)	1.2%(n=1)	0	0
11	22.2%(n=18)	13.6%(n=11)	22.2%(n=18)	2.5%(n=2)	13.6%(n=11)	6.2%(n=5)	7.4%(n=6)	4.9%(n=4)	6.2%(n=5)	1.2%(n=1)
12	16/0%(n=13)	11.1%(n=9)	18.5%(n=15)	19.8%(16)	14.8%(n=12)	8.6%(n=7)	3.7%(N=3)	2.5%(n=2)	2.5%(n=2)	1.2%(n=1)
13	22.2%(n=18)	14.8%(n=12)	12.3%(n=10)	7.4%(n=6)	24.7%(n=20)	4.9%(n=4)	9.9%(n=8)	2.5%(n=2)	1.2%(n=1)	0
14	54.3%(n=44)	13.6%(n=11)	14.8%(n=12)	3.7%(n=3)	6.2%(n=5)	1.2%(n=1)	2.5%(n=2)	1.2%(n=1)	0	1.2%(n=1)
15	61.7%(n=50)	12.3%(n=10)	9.9%(n=8)	4.9%(n=4)	0	6.2%(n=5)	1.2%(n=1)	0	0	2.5%(n=2)
16	37.0%(n=30)	11.1%(n=9)	12.3%(n=10)	9.9%(n=8)	16.0(N=13)	3.7%(n=3)	3.7%(n=3)	2.5%(n=2)	1.2%(n=1)	1.2%(n=1)
17	59.3%(n=48)	12.3%(n=10)	9.9%(n=8)	3.7%(n=3)	11.1%(n=9)	1.2%(n=1)	0	0	0	1.2%(n=1)
18	51.9%(n=42)	13.6%(n=11)	6.2%(n=5)	8.6%(n=7)	8.6%(n=7)	1.2%(n=1)	2.5%(n=2)	3.7%(n=3)	1.2%(n=1)	0
19	37.0%(n=30)	11.1%(n=9)	12.3%(N=10)	12.3%(n=10)	8.6%(n=7)	3.7%(n=3)	4.9%(n=4)	2.5%(n=2)	4.9%(n=4)	1.2%(n=1)
20	56.8%(n=46)	16.0%(n=13)	7.4%(n=6)	7.4%(n=6)	6.2%(n=5)	0	2.5%(n=2)	0	1.2%(n=1)	1.2%(n=1)
21	46.9%(n=38)	12.3%(n=10)	12.3%(n=10)	9.9%(n=8)	7.4%(m=6)	2.5%(n=2)	2.5%(n=2)	1.2%(n=1)	2.5%(n=1)	1.2%(n=1)
22	37.0%(n=30)	13.6%(n=11)	18.5%(n=15)	7.4%(n=6)	13.6%(n=11)	3.7%(n=3)	0	0	3.7%(n=1)	1.2%(n=1)
23	18.5%(n=15)	14.8%(n=12)	13.6%(n=11)	16.0%(n=13)	11.1%(n=9)	7.4%(n=6)	9.9%(n=8)	6.2%(n=5)	2.5%(n=2)	0
24	13.6%(n=11)	7.4%(n=6)	16.0%(n=13)	9.9%(n=8)	25.9%(n=21)	11.1%(n=9)	7.4%(n=6)	1.2%(n=1)	6.2%(n=5)	0
25	19.8%(n=16)	7.4%(n=6)	3.7%(n=3)	1.2%(n=1)	2.5%(n=2)	0	0	0	0	14.8%(n=12)

KEY: Question 25 pre test results missing 50.6% (n=41) responses

Table D6 Quick Stress Questionnaire Percentages of Responses (Mid-test)

	LOW			MODERATE			HIGH			NO COMMENT
	1	2	3	4	5	6	7	8	9	10
1	2.5%(n=2)	2.5%(n=2)	4.9%(n=4)	3.7%(n=3)	25.9%(n=21)	4.9%(n=4)	19.8%(n=16)	7.4%(n=6)	1.2%(n=1)	0
2	7.4%(n=6)	9.9%(n=8)	8.6%(n=7)	9.9%(n=8)	21.0%(n=17)	3.7%(n=3)	3.7%(n=3)	6.2%(n=5)	2.5%(n=2)	0
3	9.9%(n=8)	14.8%(n=12)	9.9%(n=8)	9.9%(n=8)	9.9%(n=8)	4.9%(n=4)	8.6%(n=7)	3.7%(n=3)	1.2%(n=1)	0
4	8.6%(n=7)	4.9%(n=4)	11.1%(n=9)	13.6%(n=11)	12.3%(n=10)	4.9%(n=4)	7.4%(n=6)	7.4%(n=3)	2.5%(n=2)	0
5	11.1%(n=9)	8.6%(n=7)	17.3%(n=14)	11.1%(n=9)	14.8%(n=12)	2.5%(n=2)	3.7%(n=3)	2.5%(n=2)	1.2%(n=1)	0
6	18.5%(n=15)	12.3%(n=10)	14.8%(n=12)	8.6%(n=7)	8.6%(n=7)	2.5%(n=2)	3.7%(n=3)	2.5%(n=2)	1.2%(n=1)	0
7	21.0%(n=17)	13.6%(n=11)	11.1%(n=9)	6.2%(n=5)	8.6%(n=7)	6.2%(n=5)	0	3.7%(n=3)	2.5%(n=2)	0
8	9.9%(n=8)	4.9%(n=4)	16.0%(n=13)	12.6%(n=13)	18.5%(n=15)	3.7%(n=3)	3.7%(n=3)	2.5%(n=2)	0	0
9	18.5%(n=15)	6.2%(n=5)	11.1%(n=9)	7.4%(n=6)	18.5%(n=15)	0	1.2%(n=1)	2.5%(n=2)	0	0
10	22.2%(n=18)	12.6%(n=13)	8.6%(n=7)	9.9%(n=8)	8.6%(n=7)	2.5%(n=2)	4.9%(n=4)	0	0	0
11	12.3%(n=10)	9.9%(n=8)	12.6%(n=13)	7.4%(n=6)	12.3%(n=10)	7.4%(n=6)	2.5%(n=2)	3.7%(n=3)	1.2%(n=1)	0
12	13.6%(n=11)	14.8%(n=12)	18.5%(n=15)	6.2%(n=5)	9.9%(n=8)	3.7%(n=3)	3.7%(n=3)	0	1.2%(n=1)	0
13	13.6%(n=11)	7.4%(n=6)	16.0%(n=13)	9.9%(n=8)	14.8%(n=12)	2.5%(n=2)	6.2%(n=5)	1.2%(n=1)	1.2%(n=1)	0
14	29.6%(n=24)	18.5%(n=15)	11.1%(n=9)	6.2%(n=5)	6.2%(n=5)	1.2%(n=1)	0	0	0	0
15	33.3%(n=27)	17.3%(n=14)	8.6%(n=7)	4.9%(n=4)	3.7%(n=3)	1.2%(n=1)	0	0	1.2%(n=1)	1.2%(n=1)
16	17.3%(n=14)	19.8%(n=16)	11.1%(n=9)	6.2%(n=5)	11.1%(n=9)	1.2%(n=1)	2.5%(n=2)	2.5%(n=2)	0	1.2%(n=1)
17	35.8%(n=29)	19.8%(n=16)	4.9%(n=4)	0	6.2%(n=5)	2.5%(n=2)	2.5%(n=2)	0	0	1.2%(n=1)
18	37.0%(n=30)	9.9%(n=8)	6.2%(n=5)	3.7%(n=3)	8.6%(n=7)	1.2%(n=1)	2.5%(n=2)	0	1.2%(n=1)	2.5%(n=2)
19	18.5%(n=15)	12.3%(n=10)	4.9%(n=4)	13.6%(n=11)	9.9%(n=8)	2.5%(n=2)	6.2%(n=5)	2.5%(n=2)	1.2%(n=1)	1.2%(n=1)
20	32.6%(n=28)	13.6%(n=11)	9.9%(n=8)	3.7%(n=3)	8.6%(n=7)	0	0	0	0	1.2%(n=1)
21	32.1%(n=26)	9.9%(n=8)	7.4%(n=6)	8.6%(n=7)	8.6%(n=7)	1.2%(n=1)	1.2%(n=1)	1.2%(n=1)	1.2%(n=1)	1.2%(n=1)
22	17.3%(n=14)	13.6%(n=11)	4.9%(n=4)	7.4%(n=6)	8.6%(n=7)	11.1%(n=9)	3.7%(n=3)	2.5%(n=2)	2.5%(n=2)	1.2%(n=1)
23	12.3%(n=10)	12.3%(n=10)	6.2%(n=5)	12.3%(n=10)	14.8%(n=12)	4.9%(n=4)	6.2%(n=5)	2.5%(n=2)	1.2%(n=1)	0
24	7.4%(n=6)	4.9%(n=4)	12.3%(n=10)	7.4%(n=6)	16.0%(n=13)	8.6%(n=7)	6.2%(n=5)	8.6%(n=7)	1.2%(n=1)	0
25	14.8%(n=12)	4.9%(n=4)	1.2%(n=1)	2.5%(n=2)	7.4%(n=6)	1.2%(n=1)	0	0	0	6.2%(n=5)

KEY: All mid test results missing 27.2% (n=22) responses; Question 25 missing 61.5% (n=50) responses

Table D7 Quick Stress Questionnaire Percentages of Responses (Post test)

	LOW			MODERATE			HIGH			NO COMMENT
	1	2	3	4	5	6	7	8	9	10
1	3.7%(n=3)	1.2%(n=1)	4.9%(n=4)	8.6%(n=7)	13.6%(n=11)	9.9%(n=8)	4.9%(n=4)	4.9%(n=4)	1.2%(n=1)	0
2	8.6%(n=7)	6.2%(n=5)	11.1%(n=9)	7.4%(n=6)	12.3%(n=10)	4.9%(n=4)	1.2%(n=1)	0	1.2%(n=1)	0
3	11.1%(n=9)	7.4%(n=6)	3.7%(n=3)	9.9%(n=8)	9.9%(n=8)	2.5%(n=2)	6.2%(n=5)	2.5%(n=2)	0	0
4	7.4%(n=6)	3.7%(n=3)	13.6%(n=11)	7.4%(n=6)	9.9%(n=8)	2.5%(n=2)	3.7%(n=3)	4.9%(n=4)	0	0
5	9.9%(n=8)	6.2%(n=5)	11.1%(n=9)	12.3%(n=10)	9.9%(n=8)	1.2%(n=1)	1.2%(n=1)	0	1.2%(n=1)	0
6	11.1%(n=9)	12.3%(n=10)	9.9%(n=8)	6.2%(n=5)	3.7%(n=3)	6.2%(n=5)	2.5%(n=2)	1.2%(n=1)	0	0
7	16.0%(n=13)	8.6%(n=7)	8.6%(n=7)	4.9%(n=4)	6.2%(n=5)	4.9%(n=4)	1.2%(n=1)	1.2%(n=1)	1.2%(n=1)	0
8	6.2%(n=5)	6.2%(n=5)	8.6%(n=7)	13.6%(n=11)	14.8%(n=12)	0	3.7%(n=3)	0	0	0
9	16.0%(n=13)	3.7%(n=3)	6.2%(n=5)	12.3%(n=10)	6.2%(n=5)	2.5%(n=2)	0	0	0	3.7%(n=3)
10	16.0%(n=13)	12.3%(n=10)	9.9%(n=8)	7.4%(n=6)	2.5%(n=2)	0	1.2%(n=1)	1.2%(n=1)	0	1.2%(n=1)
11	12.3%(n=10)	6.2%(n=5)	13.6%(n=11)	7.4%(n=6)	8.6%(n=7)	0	1.2%(n=1)	2.5%(n=2)	1.2%(n=1)	0
12	8.6%(n=7)	12.3%(n=10)	8.6%(n=7)	12.3%(n=10)	7.4%(n=6)	0	2.5%(n=2)	1.2%(n=1)	0	0
13	12.3%(n=10)	4.9%(n=4)	7.4%(n=6)	11.1%(n=9)	7.4%(n=6)	4.9%(n=4)	2.5%(n=2)	2.5%(n=2)	0	0
14	24.7%(n=20)	9.9%(n=8)	8.6%(n=7)	4.9%(n=4)	1.2%(n=1)	2.5%(n=2)	0	0	0	1.2%(n=1)
15	29.6%(n=24)	8.6%(n=7)	6.2%(n=5)	6.2%(n=5)	0	1.2%(n=1)	0	0	0	1.2%(n=1)
16	17.3%(n=14)	9.9%(n=8)	7.4%(n=6)	6.2%(n=5)	3.7%(n=3)	3.7%(n=3)	3.7%(n=3)	1.2%(n=1)	0	0
17	23.5%(n=19)	14.8%(n=12)	4.9%(n=4)	6.2%(n=5)	1.2%(n=1)	2.5%(n=2)	0	0	0	0
18	24.7%(n=20)	3.7%(n=3)	9.9%(n=8)	2.5%(n=2)	3.7%(n=3)	1.2%(n=1)	2.5%(n=2)	1.2%(n=1)	1.2%(n=1)	2.5%(n=2)
19	14.8%(n=12)	4.9%(n=4)	8.6%(n=7)	6.2%(n=5)	11.1%(n=9)	3.7%(n=3)	1.2%(n=1)	1.2%(n=1)	1.2%(n=1)	0
20	30.9%(n=25)	8.6%(n=7)	4.9%(n=4)	2.5%(n=2)	0	2.5%(n=2)	0	0	0	1.2%(n=1)
21	18.5%(n=15)	13.6%(n=11)	7.4%(n=6)	4.9%(n=4)	3.7%(n=3)	2.5%(n=2)	0	1.2%(n=1)	0	1.2%(n=1)
22	17.3%(n=14)	3.7%(n=3)	8.6%(n=7)	1.2%(n=1)	4.9%(n=4)	7.4%(n=6)	6.2%(n=5)	1.2%(n=1)	1.2%(n=1)	1.2%(n=1)
23	4.9%(n=4)	8.6%(n=7)	4.9%(n=4)	11.1%(n=9)	9.9%(n=8)	4.9%(n=4)	4.9%(n=4)	2.5%(n=2)	0	1.2%(n=1)
24	3.7%(n=3)	7.4%(n=6)	4.9%(n=4)	13.6%(n=11)	7.4%(n=6)	3.7%(n=3)	11.1%(n=9)	1.2%(n=1)	0	0
25	8.6%(n=7)	2.5%(n=2)	3.7%(n=3)	0	0	1.2%(n=1)	0	0	0	6.2%(n=5)

KEY: All post test results missing 46.9% (n=38) responses; Question 25 of post testing missing 77.8% (n=63) responses

Table D8 Brief Cope Questionnaire Mean and Standard Deviation Results

<u>Coping Type</u>	<u>Question</u>	<u>Time</u>	<u>Mean</u>	<u>SD</u>
Positive Coping	1. I've been concentrating my efforts on doing something about the situation I'm in.	PRE	2.68	1.25
		MID	2.54	1.16
		POST	2.37	1.05
	2. I've been taking action to try to make the situation better.	PRE	2.70	1.01
		MID	2.52	1.01
		POST	2.72	.98
	3. I've been trying to come up with a strategy about what to do.	PRE	2.58	1.14
		MID	2.57	.95
		POST	2.44	.83
	4. I've been thinking hard about what steps to take.	PRE	2.46	1.18
		MID	2.49	.91
		POST	2.52	.89
	5. I've been trying to see it all in a different light, to make it seem more positive.	PRE	2.61	1.23
		MID	2.54	.98
		POST	2.16	.92
	6. I've been looking for something good in what is happening.	PRE	2.77	1.19
		MID	2.49	.83
		POST	2.35	1.05
	7. I've been accepting the reality of the fact that It has happened.	PRE	2.72	1.03
		MID	2.64	.88
		POST	2.60	.84

8. I've been learning to live with it.	PRE	2.59	1.00
	MID	2.65	.86
	POST	2.66	.95
9. I've been making jokes about it.	PRE	2.39	1.20
	MID	2.32	1.00
	POST	2.34	1.02
10. I've been making fun of the situation.	PRE	2.26	1.27
	MID	2.22	1.01
	POST	2.32	1.08
11. I've been trying to find comfort in my religion or spiritual beliefs.	PRE	2.02	1.17
	MID	2.00	.98
	POST	2.06	.98
12. I've been praying or meditating.	PRE	1.98	1.21
	MID	1.91	1.18
	POST	1.88	.98
13. I've been getting emotional support from others.	PRE	2.01	1.08
	MID	1.96	.89
	POST	1.93	.91
14. I've been getting comfort and understanding from. Someone.	PRE	2.30	1.14
	MID	2.17	.92
	POST	2.00	.92
15. I've been trying to get advice or help from other people about what to do.	PRE	2.02	1.05
	MID	2.13	.92
	POST	2.04	.95

16. I've been getting help and advice from other people.	PRE	2.15	1.07
	MID	2.05	.90
	POST	2.02	.93
Negative Coping			
17. I've been turning to work or other activities to take my mind off things.	PRE	2.27	1.16
	MID	2.31	1.15
	POST	2.44	.98
8. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	PRE	2.48	1.23
	MID	2.55	1.02
	POST	2.30	.96
19. I've been saying to myself "this isn't real."	PRE	1.91	1.18
	MID	1.96	1.12
	POST	1.76	1.01
20. I've been refusing to believe that it has happened.	PRE	1.81	1.09
	MID	1.93	1.05
	POST	1.83	1.13
21. I've been saying things to let my unpleasant feelings escape.	PRE	1.88	1.18
	MID	2.20	1.16
	POST	2.02	1.05
22. I've been expressing my negative feelings.	PRE	1.93	1.14
	MID	2.08	1.15
	POST	1.95	.97
23. I've been using alcohol or other drugs to make myself feel better.	PRE	1.63	1.09
	MID	1.87	1.09
	POST	1.88	1.05
24. I've been using alcohol or other drugs to help me get through it.	PRE	1.48	.95
	MID	1.57	.91
	POST	1.93	1.09

25. I've been giving up trying to deal with it.	PRE	1.59	.97
	MID	1.71	.85
	POST	1.90	1.06
26. I've been giving up the attempt to cope.	PRE	1.66	1.09
	MID	1.74	.92
	POST	1.69	.86
27. I've been criticizing myself.	PRE	2.02	1.15
	MID	1.94	1.10
	POST	1.97	1.07
28. I've been blaming myself for the things that happened.	PRE	1.95	1.18
	MID	1.89	1.14
	POST	2.18	1.18

Table D9. Brief Cope Frequency and Percentages of Positive and Negative Coping Responses (pre-test)

BCQ Question Number	A or B Question	Coping Type	1	2	3	4	5 no response	Missing Data
Positive Coping								
1	A	Active	21.0%(n=17)	24.7%(n=20)	30.9%(n=25)	12.3%(n=10)	11.1%(n=9)	
2	B		14.8%(n=12)	23.5%(n=19)	40.7%(n=33)	18.5%(n=15)	2.5%(n=2)	
3	A	Planning	23.5%(n=19)	19.8%(n=16)	37.0%(n=30)	14.8%(n=12)	4.9%(n=4)	
4	B		25.9%(n=21)	27.2%(n=22)	25.9%(n=21)	16.0%(n=13)	4.9%(n=4)	
5	A	Positive Reframing	24.7%(n=20)	21.0%(n=17)	27.2%(n=22)	19.8%(n=16)	6.2%(n=5)	1.2%(n=1)
6	B		18.5%(n=15)	23.5%(n=19)	24.7%(n=20)	28.4%(n=23)	4.9%(n=4)	
7	A	Acceptance	12.3%(n=10)	28.4%(n=23)	38.3%(n=31)	16.0%(n=13)	4.9%(n=4)	
8	B		14.8%(n=12)	32.1%(n=26)	34.6%(n=28)	16.0%(n=13)	2.5%(n=2)	
9	A	Humor	28.4%(n=23)	28.4%(n=23)	18.5%(n=15)	18.5%(n=15)	3.7%(n=3)	2.5%(n=2)
10	B		34.6%(n=28)	32.1%(n=26)	9.9%(n=8)	16.0%(n=13)	6.2%(n=5)	1.2%(n=1)
11	A	Religion	43.2%(n=35)	25.9%(n=21)	16.0%(n=13)	7.4%(n=6)	4.9%(n=4)	2.5%(n=2)
12	B		49.4%(n=40)	21.0%(n=17)	12.3%(n=10)	12.3%(n=10)	3.7%(n=3)	1.2%(n=1)
13	A	Using Emotional Support	43.2%(n=35)	22.2%(n=18)	24.7%(n=20)	6.2%(n=5)	2.5%(n=2)	1.2%(n=1)
14	B		30.9%(n=25)	25.9%(n=21)	27.2%(n=22)	11.1%(n=9)	3.7%(n=2)	1.2%(n=1)
15	A	Using Instrumental Support	40.7%(n=33)	24.7%(n=20)	25.9%(n=21)	4.9%(n=4)	2.5%(n=2)	1.2%(n=1)
16	B		34.6%(n=28)	24.7%(n=20)	29.6%(n=24)	7.4%(n=6)	2.5%(n=2)	1.2%(n=1)
Negative Coping								
17	A	Self-Distraction	30.9%(n=25)	30.9%(n=25)	21.0%(n=17)	11.1%(n=9)	4.9%(n=4)	1.2%(n=1)
18	B		27.2%(n=22)	23.5%(n=19)	28.4%(n=23)	12.3%(n=10)	7.4%(n=6)	1.2%(n=1)

19	A	Denial	51.9%(n=42)	19.8%(n=16)	16.0%(n=13)	6.2%(n=5)	4.9%(n=4)	1.2%(n=1)
20	B		53.1%(n=43)	23.5%(n=19)	13.6%(n=11)	4.9%(n=4)	3.7%(n=3)	1.2%(n=1)
21	A	Venting	51.9%(n=42)	21.0%(n=17)	14.8%(n=12)	3.7%(n=3)	6.2%(n=5)	2.5%(n=2)
22	B		45.7%(n=37)	28.4%(n=32)	12.3%(n=10)	6.2%(n=5)	4.9%(n=4)	2.5%(n=2)
23	A	Substance	66.7%(n=54)	12.3%(n=10)	13.6%(n=11)	1.2%(n=1)	4.9%(n=4)	1.2%(n=1)
24	B		74.1%(n=60)	11.1%(n=9)	9.9%(n=8)	2.5%(n=2)	2.5%(n=2)	
25	A	Behavioral	63.0%(n=51)	24.7%(n=20)	4.9%(n=4)	4.9%(n=4)	2.5%(n=2)	
26	B	Disengagement	64.2%(n=52)	17.3%(n=14)	11.1%(n=9)	2.5%(n=2)	4.9%(n=4)	
27	A	Self-Blame	43.2%(n=35)	27.2%(n=22)	18.5%(n=15)	6.2%(n=5)	4.9%(n=4)	
28	B		48.1%(n=39)	27.2%(n=22)	11.1%(n=9)	8.6%(n=7)	4.9%(n=4)	

KEY: 1 = “I have not been doing this at all”; 2 = “I have been doing this a little bit”; 3 = “I have been doing this a medium amount”; 4 = “I have been doing this a lot”; 5 = “No response”

Table D10. Brief Cope Frequency and Percentages of Positive and Negative Coping Responses (mid-test)

BCQ Question Number	A or B Question	Coping Type	1	2	3	4	5 no response	Missing Data
Positive Coping								
1	A	Active	16.0%(n=13)	19.8%(n=16)	23.5%(n=19)	8.6%(n=7)	4.9%(n=4)	27.2%(n=22)
2	B		11.1%(n=9)	27.2%(n=22)	21.0%(n=17)	12.3%(n=10)	1.2%(n=1)	27.2%(n=22)
3	A	Planning	9.9%(n=8)	23.5%(n=19)	28.4%(n=23)	9.9%(n=8)	1.2%(n=1)	27.2%(n=22)
4	B		8.6%(n=7)	30.9%(n=25)	23.5%(n=19)	8.6%(n=7)	1.2%(n=1)	27.2%(n=22)
5	A	Positive Reframing	11.1%(n=9)	23.5%(n=19)	28.4%(n=23)	7.4%(n=6)	2.5%(n=2)	27.2%(n=22)
6	B		8.6%(n=7)	25.9%(n=21)	33.3%(n=27)	3.7%(n=3)	1.2%(n=1)	27.2%(n=22)
7	A	Acceptance	6.2%(n=5)	14.8%(n=12)	25.9%(n=21)	6.2%(n=5)	2.5%(n=2)	27.2%(n=22)
8	B		6.2%(n=5)	23.5%(n=19)	32.1%(n=26)	8.6%(n=7)	1.2%(n=1)	28.4%(n=23)
9	A	Humor	17.3%(n=14)	23.5%(n=19)	25.9%(n=21)	3.7%(n=3)	2.5%(n=1)	27.2%(n=22)
10	B		19.8%(n=16)	25.9%(n=21)	21.0%(n=17)	3.7%(n=3)	2.5%(n=2)	27.2%(n=22)
11	A	Religion	25.9%(n=21)	27.2%(n=22)	16.0%(n=13)	1.2%(n=1)	2.5%(n=2)	27.2%(n=22)
12	B		35.8%(n=29)	18.5%(n=15)	9.9%(n=8)	2.5%(n=2)	4.9%(n=4)	28.4%(n=23)
13	A	Using Emotional Support	24.7%(n=20)	28.4%(n=23)	16.0%(n=13)	1.2%(n=1)	1.2%(n=1)	28.4%(n=23)
14	B		17.3%(n=14)	30.9%(n=25)	18.5%(n=15)	3.7%(n=3)	1.2%(n=1)	28.4%(n=23)
15	A	Using Instrumental Support	19.8%(n=16)	27.2%(n=22)	21.0%(n=17)	2.5%(n=2)	1.2%(n=1)	28.4%(n=23)
16	B		21.0%(n=17)	30.9%(n=25)	16.0%(n=13)	2.5%(n=2)	1.2%(n=1)	28.4%(n=23)
Negative Coping								
17	A	Self-distraction	18.5%(n=15)	28.4%(n=23)	13.6%(n=11)	6.2%(n=5)	4.9%(n=4)	28.4%(n=23)
18	B		11.1%(n=9)	23.5%(n=19)	27.2%(n=22)	6.2%(n=5)	2.5%(n=2)	28.4%(n=23)

19	A	Denial	32.1%(n=26)	19.8%(n=16)	13.6%(n=11)	2.5%(n=3)	3.7%(n=3)	28.4%(n=23)
20	B		29.6%(n=24)	25.9%(n=21)	11.1%(n=9)	1.2%(n=1)	3.7%(n=3)	28.4%(n=23)
21	A	Venting	23.5%(n=19)	23.5%(n=19)	16.0%(n=13)	3.7%(n=3)	4.9%(n=4)	28.4%(n=23)
22	B		27.2%(n=22)	23.5%(n=19)	13.6%(n=11)	2.5%(n=2)	4.9%(n=4)	28.4%(n=23)
23	A	Substance	34.6%(n=28)	19.8%(n=16)	12.3%(n=10)	1.2%(n=1)	3.7%(n=3)	28.4%(n=23)
24	B		45.7%(n=37)	17.3%(n=14)	6.2%(n=5)	2.5%(n=2)	1.2%(n=1)	27.2%(n=22)
25	A	Behavioral	34.6%(n=28)	28.4%(n=23)	7.4%(n=6)	1.2%(n=1)	1.2%(n=1)	27.2%(n=22)
26	B	Disengagement	33.3%(n=27)	29.6%(n=24)	4.9%(n=4)	1.2%(n=1)	2.5%(n=2)	28.4%(n=23)
27	A	Self-Blame	33.3%(n=27)	21.0%(n=17)	8.6%(n=7)	8.6%(n=1)	1.2%(n=1)	27.2%(n=22)
28	B		35.8%(n=29)	21.0%(n=17)	6.2%(n=5)	7.4%(n=6)	2.5%(n=2)	27.2%(n=22)

KEY: 1 = “I have not been doing this at all”; 2 = “I have been doing this a little bit”; 3= “I have been doing this a medium amount”; 4 = “I have been doing this a lot”; 5 = “No response”

Table D11. Brief Cope Frequency and Percentages of Positive and Negative Coping Responses (post-test)

BCQ Question Number	A or B Question	Coping Type	1	2	3	4	5 no response	Missing Data
Positive Coping								
1	A	Active	12.3%(n=10)	17.3%(n=14)	16.0%(n=13)	6.2%(n=5)	1.2%(n=1)	46.9%(n=38)
2	B		3.7%(n=3)	21.0%(n=17)	17.3%(n=14)	8.6%(n=7)	1.2%(n=1)	46.9%(n=38)
3	A	Planning	6.2%(n=5)	21.0%(n=17)	23.5%(n=19)	1.2%(n=1)	1.2%(n=1)	46.9%(n=38)
4	B		4.9%(n=4)	23.5%(n=19)	14.8%(n=12)	8.6%(n=7)	0	48.1%(n=39)
5	A	Positive Reframing	14.8%(n=12)	18.5%(n=15)	16.0%(n=13)	3.7%(n=3)	0	46.9%(n=38)
6	B		12.3%(n=10)	17.3%(n=14)	14.8%(n=12)	6.2%(n=5)	1.2%(n=1)	48.1%(n=39)
7	A	Acceptance	6.2%(n=5)	14.8%(n=12)	25.9%(n=21)	6.2%(n=5)	0	46.9%(n=38)
8	B		6.2%(n=5)	14.8%(n=12)	22.2%(n=18)	7.4%(n=6)	1.2%(n=1)	48.1%(n=39)
9	A	Humor	12.3%(n=10)	17.3%(n=14)	17.3%(n=14)	4.9%(n=4)	1.2%(n=1)	46.9%(n=38)
10	B		13.6%(n=11)	18.5%(n=15)	12.3%(n=10)	7.4%(n=6)	1.2%(n=1)	46.9%(n=38)
11	A	Religion	17.3(n=14)	21.0%9n=17)	8.6%(n=7)	6.2%(N=5)	0	46.9%(n=38)
12	B		23.5%(n=19)	17.3%(n=14)	7.4%(n=6)	4.9%(n=4)	0	46.9%(n=38)
13	A	Using Emotional Support	19.8%(n=16)	21.0%(n=17)	8.6%(n=7)	3.7%(n=3)	0	46.9%(n=38)
14	B		17.3%(n=14)	23.5%(n=19)	7.4%(n=6)	4.9%(n=4)	0	46.9%(n=38)
15	A	Using Instrumental Support	17.3%(n=14)	21.0%(n=17)	9.9%(n=8)	4.9%(n=4)	0	46.9%(n=38)
16	B		17.3%(n=14)	22.2%(n=18)	8.6%(n=7)	4.9%(n=4)	0	46.9%(n=38)
Negative Coping								
17	A	Self Distraction	11.1%(n=9)	14.8%(n=12)	19.8%(n=16)	7.4%(n=6)	0	46.9%(n=38)
18	B		12.3%(n=10)	18.5%(n=15)	16.0%(n=13)	6.2%(n=5)	0	46.9%(n=38)

19	A	Denial	27.2%(n=22)	17.3%(n=14)	3.7%(n=3)	3.7%(n=3)	0	46.9%(n=38)
20	B		28.4%(n=23)	13.6%(n=11)	3.7%(n=3)	6.2%(n=5)	1.2%(n=1)	46.9%(n=38)
21	A	Venting	19.8%(n=16)	19.8%(n=16)	7.4%(n=6)	4.9%(n=4)	1.2%(n=1)	46.9%(n=38)
22	B		19.8%(n=16)	21.0%(n=17)	8.6%(n=7)	2.5%(n=4)	1.2%(n=1)	46.9%(n=38)
23	A	Substance	23.5%(n=19)	18.5%(n=15)	7.4%(n=6)	1.2%(n=1)	2.5%(n=2)	46.9%(n=38)
24	B		24.7%(n=20)	13.6%(n=11)	11.1%(n=9)	1.2%(n=1)	2.5%(n=2)	46.9%(n=38)
25	A	Behavioral Disengagement	23.5%(n=19)	17.3%(n=14)	8.6%(n=7)	1.2%(n=1)	2.5%(n=2)	46.9%(n=38)
26	B		25.9%(n=21)	19.8%(n=16)	6.2%(n=5)	0	1.2%(n=1)	46.9%(n=38)
27	A	Self-Blame	24.7%(n=20)	9.9%(n=8)	14.8%(n=12)	2.5%(n=2)	1.2%(n=1)	46.9%(n=38)
28	B		21.0%(n=17)	11.1%(n=9)	12.3%(n=10)	7.4%(n=6)	1.2%(n=1)	46.9%(n=38)

KEY: 1 = "I have not been doing this at all"; 2 = "I have been doing this a little bit"; 3 = "I have been doing this a medium amount"; 4 = "I have been doing this a lot"; 5 = "No response"

APPENDIX E

RECCOMENDATIONS FOR FUTURE RESEARCH

1. Repeat this study using male athletes of all sports at a Division III university to increase the total number of subjects.
2. Repeat this study using an equal sample of students that do not participate in varsity sports as a control group.
3. Repeat this study at a larger institution where the rate of athlete attrition may be lower due to external factors such as Division level of athletic participation and scholarships.
4. Repeat this study at a larger institution where the majority of the male population is used as a control group.
5. Repeat this study while examining the potential differences in stress and coping at all three NCAA athletic Divisions.
6. Examine the levels of stress and mechanisms of coping in the collegiate athlete versus club sports/intramural participants over the same time points.
7. Compare the levels of stress and mechanisms of coping between collegiate upper classmen male and upperclassmen female athletes at the three time points.

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