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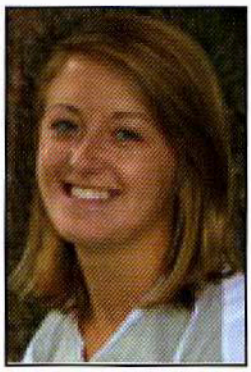
The Association of Self-esteem, Depression, Stress, Personality, and Academic Achievement on Division-III Student Athletes



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ABSTRACT

This study investigated the association of being a varsity athlete at Case Western Reserve University and academic performance. The sample included 74 undergraduate students. The study group consisted of 37 varsity athletes from the women's soccer, women's volleyball, and football teams. The control group was 37 psychology 101 students that used their participation in the study as required research credit. Each participant completed an online survey including demographics, self-assessment of academic abilities, an activities list including the number of hours spent in university sponsored activity per week, Rosenberg's self-esteem scale, Gadzella's student-life stress inventory, the Big Five Personality inventory, and the Beck Depression inventory. In the analyses of the Gadzella's, the Big Five Personality inventory, and GPA no significance was found between the athletes and non-athletes. Significant results were only found on Rosenberg's self-esteem scale, while the Beck Depression Inventory showed a trend toward significance.

INTRODUCTION

The stress of curricular and extra-curricular work for college students across the country has become a topic of interest for researchers. Many college students experience unique events throughout their undergraduate careers, such as academic pressures, financial burdens, and the task of juggling important activities that may cause excessive stress. When the stress becomes excessive, it can affect the health and academic performance of the student (Campbell & Svenson, 1992). According to Misra and McKean (2000), effective time management lowered academic stress. The sample also showed higher reactions to stress in freshmen and sophomores than juniors and seniors. Juniors and seniors developed appropriate coping skills and time management skills that allow them to better control their stress (Misra & McKean, 2000).

Athletic departments across the nation are home to a diverse background of student-athletes that come from different geographical areas, socio-economic backgrounds, and ethnicities. Division III athletics consist of approximately 136,000 student-athletes at over 430 institutions (College Student Athlete, 2007). Unlike Division I and Division II, Division III athletes do not receive

financial aid on basis of athletic merit. They are working towards a valuable degree that will further their success in their careers. Being a student-athlete is a unique experience in one's college career. Many student-athletes value this experience. An athlete's daily activities requires time management, people skills, and the ability to cope with adversity which is parallel to any life structure that is stressful, challenging and important to one's identity (Denny & Steiner, 2009). Denny and Steiner (2009) conducted a study at Stanford University and University of Texas-Austin that evaluated happiness in elite collegiate athletes at the respective universities. The researchers found that self-esteem remains the significant indicator of happiness. If an athlete feels good about themselves overall, they will tend to feel good about the separate domains in their life (Denny & Steiner, 2009).

In a study conducted at eighteen Division IA universities, 90 % of the participants reported consistently positive responses to five different items in which they were asked to rate their college experience (Potuto & O'Hanlon, 2007). Over 95 % of the participants also believed that the skills and/or values learned through participation in intercollegiate athletics will help in getting the desired job or career (Potuto & O'Hanlon, 2007). Many of these athletes also answered that they strongly agree that they would have attended college even if they had not been athletes. It was very clear that the sample of the Division IA student-athletes were satisfied with their college experience and that they understood and accepted the trade-offs they made to participate in intercollegiate athletics. It was also pointed out that student-athletes that were obtaining full scholarship to play a sport tended to be less positive in their responses than those with no or partial scholarships (Potuto & O'Hanlon, 2007). This indicates that Division III athletes should overall be more satisfied with their experience because there is no financial incentive; perhaps they are purely playing because they love the game.

The time demand of a student-athlete across any division may affect one's academic realm. These time demands of athletic programs force athletes to sacrifice attention from academics (Aries, McCarthy, Salovey, & Banaji, 2004). This study concluded that the only type of extracurricular group to which students committed on average more than ten hours per week were athletic teams and they considered themselves high-committed athletes (Aries et al., 2004). In regard to academic achievement, the participants that considered themselves high-committed had lower verbal Scholastic Aptitude Test (SAT) scores and to a lesser degree lower math SAT scores than non-athletes at the time of entrance (Aries et al., 2004). These student-athletes showed no underperformance in terms of grades in comparison to those non-athletes with similar entrance scores. Other research has found no differences between the academic achievement of intercollegiate athletes and non-athletes when precollege differences were considered (Aries et al., 2004).

Killeya (2001) reported the same results stating that the SAT scores were unrelated to the first semester grade point average (GPA) for both male and female student-athletes but non-cognitive variables were better predictors for first semester grades (Killeya, 2001). These predictors included positive self-concept and trait anxiety related to adjustment and success of student-athletes. Particularly in minorities, participation in intercollegiate athletics is more likely to foster a sense of community. If a student-athlete is finding positive support and community within athletics and negative evaluation in academics, it is likely that the athlete will deemphasize the student role in favor of the athletic role (Killeya, 2001). The athlete role is clearly an important self-concept element for most, if not all, collegiate athletes.

It is possible that the attentional and physiological changes, including anxiety and self-concept, described may interfere with academics as well as sport performances. Such attentional and physiological changes can include muscle tension, increased distractibility, inability to attend to task-relevant cues, and fatigue (Petrie & Russell, 1995). Academic courses generally include in-class, timed examinations, situations that may be acutely stressful, and in the mind of athletes, parallel to competitive sport situations (Petrie & Russell, 1995). Athletes and non-athletes alike find these situations stressful and individuals with high levels of life stress may find these situations overwhelming or threatening. In the study conducted on Division IA football players, researchers found that academic variables were generally unrelated to semester GPA but it was the psychosocial variables that better predicted GPA for athletes who were not academically successful (Petrie & Russell, 1995). Higher levels of life stress and competitive trait anxiety were associated with lower GPAs.

There are few conclusions that surround Division III athletes. These athletes exemplify the meaning of the student-athlete. They put forth countless hours on and off the court to further enrich their collegiate experience. The current study seeks to examine whether Division III student athletes at Case Western Reserve University transfer stress from their respective sport into the classroom. Are differences in academic performance seen between student-athletes and non-athletes? In the case of Case Western Reserve University, many of the student-athletes are naturally more involved causing an increased level of stress that may increase the stress in the classroom. These students may also be capable of coping with stress better than the average student. Many athletes use sports as a release so they should show a decreased level of depression compared to the non-athletes. It is hypothesized that the student-athletes will show a negative difference in academic performance that can be traced due to the stress of their athletic demands and the limit of time they have to devote to their studies.

METHODS

Participants

Participants in this study included undergraduate students from Case Western Reserve University. The survey was administered to 74 students. The study group included 37 varsity athletes from women's volleyball, women's soccer, and football. The distribution of gender was 11 males and 26 females. The control group contained 37 psychology 101 students which included 26 females and 11 males. The varsity athletes were recruited through an email that described the study which included a link to the survey. The non-athletes were recruited through a study posting on the psychology 101 website to fulfill the research requirement.

Measures

The data was collected through multiple measures in an online survey. The survey was published online using the software Snap, which securely allows one to publish a survey online. The survey began with self-reported facts which included gender, age, race/ethnicity, year of expected graduation, major(s), minor(s), number of credit hour carried that semester, and GPA of midterm performance. They were also asked to list the activities that they were involved in with an approximate number of hours per week that they put into the activity. The next part included a self-assessment of academic abilities. Students rated their skill levels in writing, analytic ability, foreign languages, science, mathematics, and computers on a 5 point scale (1 = weak, 3 = average, and 5 = outstanding).

Students also rated their self-esteem on Rosenberg's 10-item scale. The items were rated on a 5 point Likert scale (1 = completely disagree, 5 = completely agree) (Rosenberg, 1965). The participants are asked to reflect on their current feelings when answering the ten items.

B.M. Gadzella's student-life stress inventory, which was created in 1991, was used to assess the student's perceived academic stress and reaction to stress (Gadzella, 1998).

The inventory included 51 items arranged on a Likert response format (1 = never true to 5 = always true) that assessed the student's five categories of academic stressors which include frustration, conflict, pressures, change and self-imposed as well as four categories describing reactions to stressors. Previous studies (Gadzella, 1994; Gadzella & Guthrie, 1993; Gadzella & Baloglu, 2001) showed the student life stress inventory was a fairly reliably inventory measuring stressors and reactions to stressors.

The Beck Depression Inventory was also used as a measure in the study. The Beck Depression Inventory, also known as the BDI was developed in 1961 to measure the behavior manifestations of depression (Beck, Ward, Mendelson, Mock, and Erbaugh, 1961). The inventory is a 21 question measure based on a 4 choice response ranging in intensity. An example of the responses is (0) I do not feel sad, (1) I feel sad, (2) I am sad all of the time and I can't snap out of it, and (3) I am so sad or unhappy that I can't stand it. The higher total score indicates more severe depressive symptoms. The BDI has been reported to have relatively high test/re-test reliability parallel with patient's clinical state. Beck reports reliability figures to be above .90 and the validity to fall between .65 and .67 when comparing results of the BDI to psychiatric ratings of patients (1961).

The Big Five Inventory is a self-report inventory that assesses the big five personality dimensions. The multidimensional personality inventory is 44 items long and was created in 1991 (John, Donahue, and Kentle, 1991). The instrument provides a mean score for each of the five per-

	Varsity Athletes (N=37)	Non-Athletes (N=37)
Participant Characteristics	**Mean (SD)**	**Mean (SD)**
Number of Credit Hours	15.97 (1.95)	16.14 (3.77)
Self-report midterm GPA	3.48 (.37)	3.41 (.62)
Rosenberg's Self-Esteem Scale	24.35 (4.18)	21.03 (5.85)
Beck Depression Inventory	5.81 (4.61)	8.34 (6.47)
Self-reported Academic Abilities	3.51 (.39)	3.39 (.49)
Hours of Activity Per Week	8.61 (6.81)	4.22 (6.92)
Hours of Sleep Per Night	4.90 (3.21)	5.56 (2.62)

Table 1: Statistical Means of Participant Characteristics

sonality traits, extraversion, agreeableness, conscientiousness, neuroticism, and openness. The reliability of the scale ranges from .75 to .87.

The survey concluded with brief questions assessing time management, feelings toward social life and involvement, as well as asking for a detailed layout of daily schedule.

Procedure

The Institutional Review Board of Case Western Reserve University approved the study for research. The varsity athletes were recruited by an email sent out to their respective team by the head coach. If the athlete was interested in participating, they simply followed the link attached on the email to reach the survey. The survey was open from October 5, 2009 to November 2, 2009. The non-athletes were recruited through the study posting site for psychology 101 students. The psychology 101 students who completed the survey via the link through the subject pool website were granted 1 experimental credit.

Data Analysis Plan

To analyze the data collected from the surveys, the mean was taken for all of the demographics. The frequencies of year of graduation and the questions assessing time management, feelings toward social life, involvement, academic requirements, and schedule were taken for both athletes and non-athletes. Chi squares were also used to analyze the differences among the groups in time management and feelings toward social life, involvement, academic requirements, and schedule. A MANOVA was computed for both the Big Five Inventory subsets as well as the subsets of the Gadzella instrument. An ANOVA completed for the Beck Depression Inventory total and the Rosenberg self-esteem total as well as the self-reported academic abilities.

RESULTS

The study group consisted of 32.4% were freshmen, 24.3% were sophomores, 27.0% were juniors, and 16.2% were seniors. The grade level of the control participants was 45.7% were freshmen, 20.0% were sophomores, 17.1% were juniors and 17.1% were seniors with the data not provided in two cases of non-athletes. The mean course load for varsity athletes was 15.97 credit hours and the average for the non-athletes was 16.14 credit hours, $F(1,72)=.95$, $p<.01$.

To analyze that data collected from the surveys, means and standard deviations are calculated for the age, number of credit hours, and self-report GPA (see table 1). The mean scores and the standard deviations of the self-assessment of academic abilities, Rosenberg's self-esteem scale, Gadzella's student-life stress inventory, and the Beck Depression Inventory were also calculated and shown in Table 1.

The frequencies of year of graduation and the questions assessing time management, feelings toward social life, involvement, academic requirements, and schedule were taken for both athletes and non-athletes. These values are shown in Table 2 (Page 8). GPA and the number of hours the students spent in university sponsored activity were analyzed by using one-way ANOVA. An analysis of variance proved GPA to have no significance, $F(1,48)=.251$,

p=.62. There was a slight difference in the mean of the reported GPAs among the sample. Athletes reported a slightly higher GPA (M=3.48, SD=.37) than did the non-athletes (M=3.41, SD=.62). As expected, athletes (M=8.61, SD=6.81) showed significant more hours in activity than non-athletes (M=4.22, SD=6.92). An analysis of variance showed that there was significance in hours spent in university sponsored activity, F (1, 62) =6.53, p=.013.

The Beck Depression Inventory, the Rosenberg self-esteem scale, and the self-reported academic abilities were analyzed by a one-way ANOVA. An analysis of variance showed that the effect of the Beck Depression Inventory was on a trend towards significance, F (1, 72) =3.86, p<.05. The mean for athletes was lower (M=5.81, SD=4.61) than for non-athletes (M=8.38, SD=6.47). Both scores fell within the not depressed range of 0-9. The analysis of variance of Rosenberg's self-esteem scale was significant, F (1, 72) =7.92, p<.01. The mean score showed that athletes' self-esteem was higher (M=24.35, SD=4.18) than the non-athletes' self-esteem (M=21.03, SD=5.85). Both athletes (M=3.51, SD=.39) and non-athletes (M=3.40, SD=.49) reported their feelings toward their academic abilities similarly. The analysis of variance was not significant, F (1, 72) =1.39, p=.24.

A MANOVA was used to analyze the Big Five Inventory and Gadzella's student-life inventory among athletes and non-athletes. The analysis for the Big Five Inventory comparing athletes to non-athletes indicated no significant differences among the groups, F(5,68)=2.04, p=.08. The MANOVA comparing the sums of Gadzella's student-life inventory among athletes and non-athletes also indicated no significant differences, F (2, 72) =1.75, p=.18.

Multiple chi-square tests of independence were performed to examine the relation between being an athlete and questions regarding feelings toward social life, time to complete work, time to sleep, meeting academic requirements, schedule, and involvement. The relation between being an athlete and feeling that one had enough time to complete work was not significant, $X^2(1, N=69) = 1.17$, p=.28. The relationship between having enough time for a social life

	Athletes (N = 37)	Non-Athletes (N = 37)
Year of Graduation		
2013	16.2	17.1[a]
2012	27.0	17.1[a]
2011	24.3	20.0[a]
2010	32.4	45.7[a]
Do you feel like you have enough time to complete your work?		
Yes	57.1[a]	44.1[b]
No	42.9[a]	55.9[b]
Do you feel you have enough time for a social life?		
Yes	57.1[a]	58.8[b]
No	42.9[a]	41.2[b]
Do you Have enough time to sleep?		
Yes	54.3[a]	45.5[c]
No	45.7[a]	54.5[c]
Do you feel you are struggling to meet academic requirements?		
Yes	38.2[b]	47.1[b]
No	61.8[b]	52.9[b]
Do you feel that you are overwhelmed by your schedule?		
Yes	42.4[c]	52.9[b]
No	57.6[c]	47.1[b]
Do you wish you were more involved with other campus activities?		
Yes	44.1[b]	61.8[b]
No	55.9[b]	38.2[b]

Table 2: Frequency Distribution Comparison of Athletes and Non-Athletes

[a] Valid percent reported due to 2 missing cases reported
[b] Valid percent reported due to 3 missing cases reported
[c] Valid percent reported due to 4 missing cases reported

and being an athlete also showed no significance, $X^2(1, N=69) = .02$, $p=.89$. No significance was found between the relationship of having enough time to sleep and being a student-athlete, $X^2(1, N=68) = .53$, $p=.47$. The relationship between being an athlete and feeling that one is struggling to meet academic requirements also showed no significance, $X^2(1, N=68) = .54$, $p=.46$. No significance was found between the relationship in being an athlete and feeling that one is overwhelmed by their schedule, $X^2(1, N=67) = .74$, $p=.39$. The relationship between being an athlete and wishing one was more involved was not significant, $X^2(1, N=68) = 2.13$, $p=.15$.

DISCUSSION

As stated earlier, this study attempted to observe the differences between athletes and non-athletes in their academic performance, stress, personality, and depression. The hypothesis stated that the added stress would show a negative difference in GPA as well as increased levels of stress, and increased thoughts of depression.

The results showed no significant finding when comparing athletes to non-athletes on personality, GPA, and stress. The results did show a trend toward significance in the BDI whereas significant differences were seen between groups in Rosenberg's self-esteem scale.

The analysis reports that like athletes in Division I and II, the athletes at Case Western Reserve University reported a time commitment of over ten hours per week in university sponsored activities, mainly athletics. In other studies on Division III student-athletes, student-athletes generally do not rate athletics as a negative predictor of GPA because there is nothing binding them to continue their experience. As part of the NCAA Division III institutions, Case Western Reserve University is not allowed to give partial or full scholarships to its athletes. Therefore, these students continue to participate because of their love for the game. Student-athletes at Case Western Reserve University did not report any differences in time commitments. Both groups believed that they had enough time to complete their work required for class.

At this point in ones athletic career, athletes have mastered balancing their academic and athletic careers. Athletes at Case Western Reserve University may have better mastered time management and they define athletics as a sense of belonging. Athletes take pride in their sport and the institution they represent. Although there were no significant findings between GPA, stress, and personality, there may be multiple reasons as to why an athlete and non-athlete would vary in these results. GPA can tie back to the time management skills that athletes have learned to adapt to over the many years of participating in athletics. Many athletes may use their respective sport as an outlet for the daily stress of academics at Case. The physical activity may also contribute to the lowered rates of stress reported by the students. There may be certain personality types that continue athletics at the collegiate level.

The significant differences among groups on Rosenberg's self-esteem scale could possibly indicate multiple things. Student athletes that are involved in athletics may develop a sense of pride in the athletic community leading to a feeling of belonging. Self-esteem may also be higher in athletes because athletes competing at the collegiate level are talented and skilled in their respective sport.

There are a few aspects of the study that could have been changed to make for better results. A larger sample of varsity athletes participating in different seasons would have increased the variation in the study group. Many of the fall seasons are considered shorter than those in the winter and spring. A broader range in my control group would have also been beneficial for a better comparison in age and major than the psychology 101 students. The sample collected did not accurately depict the gender ratio present at Case. Although self-reports can be accurate measures, choosing measures that are less subjective could have also validate the data.

Student-athletes are an under researched population, especially Division III women athletes. These findings indicate that more research needs to be done to further look at personality affects as well as other psychological aspects. This study proves to be a broad look into the predictors of student-athletes success off the court. Division III athletes may also be less likely to rate athletics as a negative factor to their success because it is an activity that they enjoy and take great pride in. This means that students are more likely to rate an unfavorable event, like a bad grade, more stressful than athletics. Division III student-athletes at highly selective universities, such as Case Western Reserve University, are a unique population that may soon begin to see an overwhelming interest in research.

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