

Social Connectedness, Self-Esteem, and Depression Symptomatology Among Collegiate Athletes Versus Nonathletes

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Abstract. Objective: The authors compared collegiate athletes and nonathletes to see whether there were significant differences in the perceived levels of social connectedness, self-esteem, and depression and if an interaction among the variables of athlete status, gender, GPA, BMI, and levels of weekly exercise and sleep were associated with depression symptomatology. **Participants:** Participants were 227 college students. **Method:** The authors surveyed students using the Center for Epidemiologic Studies Depression Scale, the Rosenberg Self-Esteem Scale, and the Social Connectedness Scale-Revised. **Results:** Athletes had significantly greater levels of self-esteem and social connectedness, as well as significantly lower levels of depression, than did nonathletes. However, the statistically strongest predictors of depression in this cohort were the variables of gender, self-esteem, social connectedness, and sleep. **Conclusion:** This study adds to the limited and inconsistent research in the empirical knowledge base regarding depression among collegiate athletes.

Keywords: athletics, counseling, gender, health education, mental health

On US college campuses, collegiate athletes are considered a high-risk subculture for a variety of health behaviors, including alcohol use and abuse, disordered eating, coping with the stressors of injuries and academic performance, overtraining, lack of sleep, and feelings of exhaustion.¹ Many of these variables correlate directly with depression.² Although preliminary data show that athletes experience intense pressure and anxiety and may be at similar or higher risk for depression than their peers,³ research is limited on depression among collegiate athletes.¹ Collegiate athletes may be protected from depres-

sion because of lifestyles that revolve around regular exercise,⁴ increased self-esteem,⁵ and social support and connectedness.⁶ Cross-sectional studies show that people who are physically active are 3 times less likely to suffer from depression than are inactive individuals and that depressive symptoms decrease with increasing levels of physical activity.⁴ Furthermore, people who are more socially connected report less psychological distress, including depression and low self-esteem, than do people who are less connected.⁷ The limited research on the overall health and well-being of collegiate athletes is inconsistent.¹ The gaps in the literature show that depression among collegiate athletes is an understudied health issue. The primary purpose of this study was to determine if there were significant differences between collegiate athletes versus nonathletes, and female college students versus male college students, regarding levels of self-esteem, social connectedness, and depression. Our secondary purpose was to determine if the variables of gender and athlete status and the interaction between the 2 with the other variables of GPA, levels of weekly exercise, sleep, self-esteem, and social connectedness were predictors of depression among college students ages 18 to 24 years.

METHODS

Participants in this study were a volunteer sample of full-time, undergraduate students at a small, private, liberal arts college in the South. The sample included 227 participants; 75.8% were white, 9.7% were black, 7.9% were Hispanic/Latino, and 2.2% were Asian/Pacific Islander. More than half of the participants were female (59.9%), an accurate representation of the entire student body. The average age of participants was 20 years ($M = 19.87$ years, $SD = 1.33$ years), and their ages ranged from 18 to 24 years. Classification ranged accordingly: 29.1% were freshman, 28.2% were sophomores, 25.1%

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were juniors, and 16.7% were seniors. The majority of the participants resided on campus in a residence hall (86.8%), and 34.8% ($n = 79$) reported being a member of a fraternity or sorority (eg, Greek status). The majority of the respondents were single (59.9%) or in a committed dating relationship (38.8%). Of the 227 participants, 45.8% ($n = 104$) reported being a member of a NCAA Division I varsity athletics team.

After receiving approval from the Institutional Review Board, we collected the data on the college campus in the cafeteria during regularly scheduled lunch and dinner operating hours. Data collection proceeded accordingly: (1) students approached the information table and were personally informed of the research study by the researcher; (2) students who agreed to participate signed an informed consent form, acknowledging that their participation was anonymous, voluntary, and confidential; (3) students returned the informed consent to the researcher and were handed a packet of surveys; (4) surveys were completed inside a private dining room; (5) students returned the sealed packet of surveys to the researcher; and (6) data were identified with a unique ID code.

Measures

The Center for Epidemiologic Studies Depression Scale (CES-D)

We measured depression symptomatology by using the CES-D.⁸ The CES-D is a 20-item, 4-point Likert scale commonly used to assess depressive symptomatology in the general population. Scores range from 0 to 60; a score of 16 or greater is considered positive for depression. Reliability of the scale was reported at .87, with an internal consistency of .91 for college populations, adequate test-retest reliability (.80–.90), and concurrent validity.⁸

The Rosenberg Self-Esteem Scale (RSES)

We assessed self-esteem by using the RSES, which is a 10-item, 4-point Likert scale considered to be a reliable and valid self-report scale commonly used to assess feelings of self-worth.⁹ The range of possible scores is 10–40; the higher the score, the higher the self-reported self-esteem. In college populations, the test-retest reliability was in the range of .85–.88 and Cronbach’s alpha was reported at .89.^{6,9}

The Social Connectedness Scale-Revised (SCS-R)

The SCS-R is a 20-item, 6-point Likert scale used to “measure social connectedness as a psychological sense of belonging.”^{10(p316)} Scores are summated and range from 20 to 120. Higher scores indicate greater levels of social connectedness and belongingness. The SCS-R has been cited as having good internal reliability, as well as convergent and discriminant validity. Coefficient alpha in a college student sample was .92.⁶

The CES-D, RSES, and SCS-R surveys were randomized in 3 different coded orders to test for and counterbalance instrument order effects. No significant effects of order were found ($p < .05$).

RESULTS

We used Statistical Package for Social Sciences (SPSS) software package version 12.0 to analyze the data. Pearson’s product moment correlations demonstrated that there were statistically significant correlations between all 3 dependent measures. As illustrated in Table 1, there was a significant correlation between depression and self-esteem ($r = -.372, p < .01$), as self-esteem had an inverse relationship to depression. The inverse relationship between depression and social connectedness had a stronger correlation ($r = -.619, p < .01$). A significant relationship between social connectedness and self-esteem was also found ($r = .414, p < .01$). This relationship demonstrated that as levels of self-esteem increased, levels of social connectedness also increased.

Multivariate analysis of variance (MANOVA) test results, shown in Table 2, indicated a significant main effect for athlete status, $F(3, 223) = 5.61, p < .01$, revealing that there were differences between collegiate athletes and nonathletes on all 3 variables. As expected, collegiate athletes ($M = 15.85, SD = 1.33$) had greater self-esteem than nonathletes ($M = 15.32, SD = 1.59$), $F(3, 223) = 7.49, p < .01$. Collegiate athletes ($M = 97.20, SD = 13.20$) also had significantly greater social connectedness than did nonathletes ($M = 89.57, SD = 15.65$), $F(3, 223) = 14.95, p < .001$. Collegiate athletes ($M = 13.78, SD = 9.09$) also had lower depression than did nonathletes ($M = 16.72, SD = 9.81$), $F(3, 223) = 4.76, p < .05$.

MANOVA on the 3 dependent measures between men and women revealed a significant main effect for gender, $F(3, 223) = 3.69, p < .05$; there were significant differences between female versus male college students on the depression variable, $F(3, 223) = 5.70, p < .05$. Female college students ($M = 16.69, SD = 10.10$) had higher levels of depression than did male college students ($M = 13.41, SD = 8.43$). Men and women did not significantly differ on self-esteem or social connectedness; nor was there a significant interaction effect between athlete status and gender, $F(3,221) = 0.23, p = .873$.

When comparing collegiate athletes ($n = 104$) and nonathletes ($n = 123$) in the present study, analyses revealed a significant main effect in that athletes displayed more days per week of aerobic exercise ($M = 3.10, SD = 0.82$; nonathlete $M = 1.89, SD = 0.90$), $F(3, 223) = 101.61, p < .001$; strength training ($M = 2.43, SD = 0.81$; nonathlete $M = 1.57, SD = 0.82$), $F(3, 223) = 58.98, p < .001$; and rested sleep ($M = 2.37, SD = 0.78$; nonathlete $M = 1.99, SD = 0.78$),

TABLE 1. Pearson’s Product Moment Correlations Between the Dependent Measures ($n = 227$)

Measure	Depression	Social connectedness
Self-esteem	-.372 ^a	.414 ^a
Depression	—	-.619 ^a

^a $\alpha = .05, p < .01$.

TABLE 2. Average Scores on Self-Esteem, Depression, and Social Connectedness Between Athletes and Nonathletes and Male and Female Students (N = 227)

Variable	Nonathlete			Collegiate athlete			All students		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Self-esteem ^a									
Male	44	15.23	1.65	47	15.89	1.45	91	15.57	1.58
Female	79	15.37	1.56	57	15.81	1.25	136	15.55	1.45
Total	123	15.32	1.59	104	15.85	1.33	227	15.56	1.50
Depression ^{ab}									
Male	44	15.23	9.58	47	11.70	6.86	91	13.41	8.43
Female	79	17.56	9.90	57	15.49	10.34	136	16.69	10.10
Total	123	16.72	9.81	104	13.78	9.09	227	15.37	9.58
Social connectedness ^a									
Male	44	89.11	15.34	47	96.91	12.69	91	93.14	14.49
Female	79	89.82	15.91	57	97.44	13.71	136	93.01	15.44
Total	123	89.57	15.65	104	97.20	13.20	227	93.07	15.04

Note. Means are from 2-way (Athlete Status × Gender) multiple analysis of variance, multivariate effects: athlete status $F(3, 223) = 5.61, p < .01$; sex $F(3, 223) = 3.69, p < .05$; interaction $F(3, 223) = 0.23$.

^aSignificant univariate main effect for athlete status.

^bSignificant univariate main effect for sex.

$F(3, 223) = 12.15, p = .001$; see Table 3. Nonathletes had higher GPA ($M = 3.25, SD = 0.61$; athlete $M = 2.90, SD = 0.60$), $F(3, 223) = 19.68, p < .001$ and BMI ($M = 25.23, SD = 5.47$; athlete $M = 23.21, SD = 2.51$), $F(3, 223) = 15.11, p < .001$.

We conducted a stepwise multiple regression to determine predictors of depression in college students. Overall, social connectedness, gender, sleep, and self-esteem were significant in predicting depression, $F(3, 223) = 45.25, p < .001$, and accounted for 45% of the variance. The following results take into account when controlling for the other variables: First, an increase in social connectedness predicted a decrease in depression ($\beta = .539, p < .001$). Second, being a female, compared with being a male college student, predicted an increase in depression ($\beta = .163, p = .001$). Third, an increase in days per week of rested sleep predicted a decrease in depression ($\beta = -.154, p < .01$). Last, an increase in self-esteem predicted a decrease in depression ($\beta = -.124, p < .05$; see Table 4).

COMMENT

Results from this study indicate a high prevalence of depression among the cohort of college participants. The results showed that 33.5% had clinically significant levels of depression, indicating that depression is a significant health concern on college campuses. Health educators and counseling services should be aware of factors that predict the development of depression symptomatology in college students to improve their mental health, academic performance, and social well-being.

The primary outcome of this study was that although collegiate athletes were found to have significantly lower levels of depression than nonathletes, athlete status was not a statistically significant predictor of depression when compared with the other variables under investigation including gender, levels of self-esteem, social connectedness, and rested sleep. Female college students had higher levels of depression than did male college students. Furthermore, lower levels of self-esteem and social connectedness predicted higher

TABLE 3. Means and Standard Deviations of Personal Characteristics Between Athletes and Nonathletes (n = 227)

Variable	Nonathlete			Collegiate athlete			<i>F(3, 223)</i>	<i>p</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>		
Age	122	19.89	1.41	103	19.83	1.25	0.12	.731
GPA ^a	122	3.25	0.60	103	2.90	0.61	19.68	.000
Days of aerobic exercise/wk	122	1.89	0.90	103	3.10	0.82	101.60	.000
Days of strength training/wk	122	1.57	0.82	103	2.43	0.81	58.98	.000
Days of rested sleep/wk	122	1.99	0.78	103	2.37	0.78	12.15	.001
Body mass index	122	25.23	5.47	103	23.21	2.51	15.11	.000

TABLE 4. Stepwise Multiple Regressions Predicting Depression in College Students Aged 18 to 24 Years (N = 227)

Model	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Model 1					
Social connectedness*	-0.394	.03	-.619	-11.82	.000
Model 2					
Social connectedness*	-0.394	.03	-.618	-12.05	.000
Sex*	3.234	1.00	.166	3.23	.001
Model 3					
Social connectedness*	-0.375	.03	-.588	-11.51	.000
Sex*	3.194	.98	.164	3.26	.001
Sleep*	-1.978	.62	-.164	-3.21	.002
Model 4					
Social connectedness*	-0.343	.04	-.539	-9.76	.000
Sex*	3.185	.97	.163	3.28	.001
Sleep*	-1.858	.61	-.154	-3.03	.003
Self-esteem ^a	-0.793	.35	-.124	-2.26	.025

**p* < .01.
^a α = .05.

levels of depression in this college population. These results contribute to our understanding of factors that predict the development of depression symptomatology among college students and add to the limited and inconsistent research in the empirical knowledge base on this topic.

Social Connectedness, Self-Esteem, and Depression

We found statistically significant correlations between all 3 measures. As expected, when levels of self-esteem increase, levels of depression decrease. The inverse correlation between depression and social connectedness found in this study also supports evidence that has shown people with low levels of social connectedness report more psychological distress, including depression and low self-esteem, whereas people with high levels of social connectedness are protected from depressive symptomatology.⁷ Current research also identifies the linear correlation between social connectedness and self-esteem, which is supported by this study such that increased social connectedness is related to increased self-esteem.

Athlete Status and Gender

There were statistically significant differences between collegiate athletes and nonathletes on levels of self-esteem, social connectedness, and depression. First, athletes in this study had greater levels of perceived self-esteem than did nonathletes. This result agrees with the substantiated research citing the relationship between sport participation and self-esteem.^{4,11} Second, data from this study support the theory that social networks and support are the foundation of most athletic teams. According to Lee et al, teen and college years are “critical developmental periods”^{10(p311)} for social connectedness, and peer and group associations allow individuals to “identify with others who share similarities in appearance, interests and talents which draw people closer together and validate a sense of connectedness.”^{10(p311)} In the present study,

collegiate athletes had greater levels of perceived social connectedness than did nonathletes. The positive influence of a social network and team support may be the variable that most profoundly protects collegiate athletes from depressive symptomatology. Third, data from this study contradict the assumption that athletes may be at similar or higher risk for depression than are their peers.³ The collegiate athletes in this population had lower levels of depression symptomatology than the nonathletes. This supports the literature insinuating that the psychosocial outcomes of sport participation positively influence mental health outcomes, which can buffer symptoms of depression.¹⁰ These findings indicate that social and mental health education programs do not need to be customized for collegiate athletes. Health educators and campus administrators should acknowledge that depression among all college students is a significant concern, but even more so for students not involved in athletics. Health promotion programs should focus on educational activities that increase levels of social connectedness and self-esteem for the general student body.

In terms of gender, we found a statistically significant difference in depression between female and male college students, which is supported by prevalence data in the literature.¹² As demonstrated in Le et al,¹³ women are twice as likely to be diagnosed and treated for major depression than are men. The need for more research on depression among female college students is obvious. Further research should focus on how to help female college students combat symptoms of depression to provide depression-related intervention strategies targeted at and tailored for their unique needs.

Predictors of Depression in College Students

We identified statistically significant differences in personal characteristics between collegiate athletes and

nonathletes. As expected, this study found that collegiate athletes had lower BMIs and participated in more days per week of aerobic and strength training exercise. Physically active people are less likely to suffer from depression symptomatology than are inactive individuals.⁴ Numerous studies have shown that consistent aerobic and strength-training exercise significantly improve self-esteem and reduce depression.^{4,14} In this study, days per week of aerobic exercise was significantly correlated to self-esteem and social connectedness. Days per week of strength training was significantly correlated to social connectedness, indicating that increased days per week of strength training was related to increased levels of social connectedness. In addition, results from this study revealed that collegiate athletes receive more days per week of rested sleep, which was significantly correlated to self-esteem and social connectedness. This outcome is contrary to the logical assumptions in the literature that collegiate athletes sleep fewer hours than do nonathletes.¹⁵

Other than the variables of gender, self-esteem, and social connectedness, we also identified days per week of rested sleep as a significant predictor of depression. This finding was consistent with current research that reveals lack of sleep is directly correlated to depression.^{16,17} College students are documented in the literature as being most acutely affected by sleep difficulties when compared with other populations.¹⁶ Voelker¹⁷ recently reported that stress, together with sleep loss and substance abuse, is a recipe for clinical depression. Nationwide, 11% of college students report getting a good night's sleep.¹⁸ In this study, only 5.3% of the participants reported getting 6 to 7 days of quality sleep each week so that they felt rested when they woke up in the morning; 19.4% reported feeling rested 0 to 1 day(s) per week. Sleep problems have been identified as one of the top 3 impediments to academic achievement on college campuses.¹⁸ Because lack of sleep increases the risk of depression, behavioral intervention sleep programs should be implemented in life quarters such as the residence halls and individual dorm rooms on college campuses.

Limitations

We used a convenience sample to survey participants; therefore, the study reflects 1 college campus' population, and the results cannot be generalized to college students or collegiate athletes nationally. This study also used a cross-sectional design. The CES-D, RSES, and SCS-R used to collect data only provide a snapshot of a college student's depression, self-esteem, and social connectedness at 1 moment in time, as defined by the limitations of each scale.

Conclusion

Reducing the prevalence of depression in college students should be a public health priority. According to data from the American College Health Association,¹⁸ health educators and the staff of health services are the most believable sources of health information reported by

college students. Therefore, these faculty and staff members need to be aware of the prevalence of depression on their respective campus and direct their attention to depression symptomatology, prevention, diagnosis, and treatment methods. We recommend that health educators and health services use either the empowerment model or the diffusion of innovation theory to provide tailored communication to college students' health needs. Seeking group therapy or individual counseling needs to become a social normative on college campuses. Because most college students have convenient access to health and counseling services, social marketing campaigns need to be implemented to help students overcome barriers, including shame and suppression, to feel more comfortable using the campus services. Social marketing campaigns can help dispel the myth that feelings of hopelessness, loneliness, and lack of self-worth are signs of personal weakness and teach that they are symptoms of depression, which can effectively be treated. *Toilet talk*, monthly newsletters located in residence hall bathrooms, can be a form of social marketing with the purpose of informing students of depression symptomatology, prevalence data, and prevention and treatment options available on campus. Peer health educators, such as students in the Allied Health Organization and Resident Hall Assistants, can be trained as health service liaisons to support and encourage the use of counseling services among students. A health education Web site should also be conveniently linked to the college's main Web page. Such a site can be used to provide valuable information, online screening tools, and on- and off-campus health resources.

College campuses need to recognize the importance of a healthy mind and body and specifically address how depression impacts academic performance, school and life satisfaction, and social relationships. Reducing the prevalence of depression among college students must involve a multidimensional, comprehensive, and collaborative approach by the entire campus community to combat the multifaceted correlates and impact of depression.

NOTE

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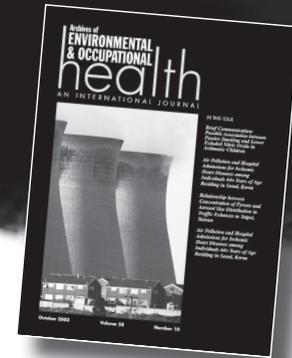
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