



Mental Health Education and Self-Reported Depressive Symptoms Among College Athletes

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Depression among collegiate student-athletes is a subject of growing research interest. The time demands and performance-related pressures that collegiate student-athletes face increase the risk for possible mental health diagnoses. It is recommended collegiate student-athletes receive training on mental health issues to learn about symptoms or identify early warning signs. This study investigated whether receiving or not receiving pre-sport mental health education influenced reported depressive symptoms of National Association of Intercollegiate Athletics (NAIA) collegiate student-athletes. This quantitative, cross-sectional study included voluntary collegiate student-athletes aged 18 years old or older ($n = 361$). Descriptive statistics were utilized to describe the characteristics of the participants. An independent sample t -test compared the mean scores between two groups. Most participants ($n = 229, 63.7\%$) indicated they did not receive mental health training from their college or university prior to sport participation. A web-based instrument that consisted of a demographic questionnaire and Patient Health Questionnaire (PHQ-9) was used to identify collegiate student-athletes who reported depressive symptoms. Collegiate-student athletes who did not receive pre-sport mental health training scored in a higher category of depression symptoms than their student-athlete peers who did receive mental health training. This study recommends that college athletic programs should explore the importance of as well as implement mental health training sessions

and practices to prepare collegiate student-athletes to recognize and respond promptly and appropriately to mental health challenges.

Keywords: mental health literacy, college athletes, depression, NAIA

Collegiate student-athletes face many challenges such as balancing academics, social life, work, and family issues (Hagedorn et al., 2022). Over the past few years, uncertainty due to a global pandemic and loss of face-to-face learning opportunities added to these challenges (Hagedorn et al., 2022). With the increase in challenges, there has been a global increase in mental health conditions, especially depression. According to the National Institute of Mental Health (2023), approximately 8.3% of adults aged 18 or older experienced a depressive episode in the past year. When the data was limited to college-aged students ranging from 18-25 years old, the depression prevalence was 18.6%. The American College Health Association (2019) found 45.1% of college students reported significant signs of depression that affected their ability to function. A subsection of the college student population of focus in this study is collegiate student-athletes.

Collegiate student-athletes face the additional pressure and demands of competing in a high-level sporting event. Although exercise can serve as a protective factor for mental health issues like depression, the time demands and pressure to perform that collegiate student-athletes face increases their risk for depression (Cox et al., 2017; Moore, 2017; Moore et al., 2022). Various studies found the prevalence of depression in collegiate student-athletes ranges from 15.6% to 33.2% (Cox et al., 2017; Proctor & Boan-Lenzo, 2010; Weber et al., 2023; Wolanin et al., 2016).

The increased risk for mental health issues like depression has caused concern in the athletic ecosystem (Moreland et al., 2018). Historically, knowledge of depression in collegiate student-athletes and those surrounding them remained limited (Moreland et al., 2018; Weber et al., 2023). Mental health training is one approach to increase help-seeking behaviors as well as increase the recognition of conditions by coaches/trainers and the collegiate student-athletes themselves to expedite the referral process (Daltry et al., 2021).

Research into the effects of mental health training on collegiate student-athletes remains ongoing (Gorczyński et al., 2024; Moore et al., 2022). The purpose of this study is to examine how pre-participation mental health training that focuses on mental health literacy offered by NAIA programs might impact reported depressive symptoms. To date, there are no studies exploring the impact of pre-participation mental health training on reported depressive symptoms in NAIA college athletes.

Literature Review

Mental health literacy is defined as the knowledge and beliefs about mental health disorders which aid one's recognition, management, or prevention (Jorm et al., 1997). Other scholars conceptualize mental health literacy as an individual's capacity to obtain, evaluate, and utilize health information autonomously in order to make informed decisions concerning their health and medical care (Chinn, 2011; Sorensen et al., 2012). Being mental health literate includes the following components: (1) ability to recognize specific disorders, (2) knowledge of how to seek

mental health-related information, (3) knowledge about risk factors and causes of mental health disorders, (4) knowledge about how to self-treat and of the availability of professional help, (5) attitudes that promote the recognition of mental health problems, and (6) attitudes that promote seeking appropriate help (Jorm et al., 1997; Moore et al., 2022).

A prior study showed that possessing sufficient mental health literacy at an individual level such as college students is correlated with improved health results, including suicide prevention (Pearce et al., 2003). Having knowledge about mental health literacy has also been associated with greater propensity to seek assistance and adhere to medication regimens, leading to enhanced mental well-being (Bonabi et al., 2016). Moreover, other research demonstrates that increasing mental health literacy through training decreases the risk of depression (Moore, 2017; Walker et al., 2010). For example, Walker et al. (2010) provided mental health education to 909 adults. As their data collection method, Walker et al. (2010) used the PHQ-9, which is a self-reported questionnaire that assessed the severity of depressive symptoms among the sampled participants. After six weeks, depressive symptoms were lower for those receiving the training when compared to the control group. Researchers found the same results in high school aged students. A study of 1,678 Chinese students found there was an increased odd of about 60% of moderate to severe depression for those students demonstrating inadequate levels of mental health literacy (Lam, 2014). Shim et al. (2022) investigated the effectiveness of psychoeducational tools in enhancing awareness and mitigating stigma associated with mental health. Their study revealed that completion of the Abnormal Psychology course was associated with a discernible decline in stigma among students as well as a significant positive change in beliefs and awareness about mental health. Their findings underscored the potential of mental health education in fostering awareness and comprehension, while reducing stigma surrounding mental health issues. By equipping students with education and training in mental health, the study highlights the importance of fostering understanding and empathy towards mental illness, thereby promoting overall well-being (Shim et al., 2022). Although research is showing increased mental health literacy decreases the risk for depression, there is a need for more research to determine the best method of improving mental health literacy. Specifically, there is a need to learn more about the availability of such mental health training to collegiate student-athletes and the impact mental health training has on a collegiate student-athletes self-reporting of depressive symptoms.

Collegiate student-athletes suffering from mental health conditions like depression need to seek help from an appropriate mental health provider. Unfortunately, there is hesitation to reach out and ask for help. The most often cited barrier to help-seeking by collegiate student-athletes is the stigma associated with mental health disorders (Moore, 2017; Moore et al., 2022). Other commonly cited barriers include: (1) feeling weak for seeking help, (2) belief that mental health providers do not understand demands placed on collegiate student-athletes, (3) fear that seeking help will impact sport performance, (4) concern about disappointing coaches and teammates, (5) concern about privacy and confidentiality, (6) lack of mental health literacy, and (7) negative past experiences when help-seeking (Gulliver et al., 2012; Moore, 2017).

While many barriers exist, ways to support collegiate student-athletes as well as increase help-seeking have also been identified. Increasing mental health training on literacy, having an established relationship with a mental health provider, and creating a supportive athletic environment that encourages self-care have been identified by collegiate student-athletes as approaches that facilitate help-seeking (Gorczynski et al., 2024; Moore et al., 2022). Ensuring

confidentiality is another key to encouraging help-seeking. Cutler and Dwyer (2020) found collegiate student-athletes were more likely to seek help from a mental health provider within the athletic department than to go to a university counseling center – as long as confidentiality is ensured.

Understanding the signs and symptoms of mental health, along with the realization that mental health symptoms can be a normal part of the collegiate student-athlete experience, increases the likelihood a collegiate student-athlete will recognize they are struggling and seek help earlier (Simons et al., 2023). Lack of mental health training could lead to delay in help-seeking and increased risk for development of more severe mental health reported symptoms (Paulus et al., 2015). The current study seeks to build on previous literature by looking at an understudied population – NAIA collegiate student-athletes. Specifically, the NAIA has invested time and resources in trying to bolster their mental health training offerings (Neal et al., 2015). Offering education on stress, stress-management techniques, and the resources accessible to collegiate student-athletes for enhancing stress management can be equally advantageous as guidance on hydration, nutrition, and sleep for enhancing performance (Neal et al., 2015). Neal et al. (2015) further states that this comprehensive approach addresses not only physical but also mental well-being, optimizing the athlete's capacity to excel both in their athletic pursuits and in their daily life activities. Additionally, mental health issues are at the forefront of the NAIA's (2024) commitment to collegiate student-athlete health and safety. Understanding and appreciating the complexity of topics related to these issues are key components of the NAIA's holistic approach to collegiate student-athlete development. Recognizing mental health issues are not only detrimental to performance, but disrupt the healthy function of college students, it is the desire of the NAIA to create a culture where collegiate student-athletes feel safe to reach out about mental health concerns in the same way one might reach out for care of an athletic injury. Identifying whether pre-sport mental health training decreases reported depressive symptoms can both illustrate the importance of such mental health training efforts and provide support for the NAIA in their ongoing efforts to promote collegiate student-athlete well-being and mental health literacy. Specifically, the study addresses the following research question: Does receiving mental health training prior to sport participation decrease reported depressive symptoms for NAIA collegiate student-athletes?

Methods

Research Design

This exploratory study received approval by a university's institutional review board. Researchers utilized a cross-sectional, web-based survey design to gather data from NAIA collegiate student-athletes. Web-based surveys are crucial strategies for collecting data from large sample groups quickly and with minimal cost. Furthermore, dissemination, data storage, and analysis are efficient and user-friendly (Greenlaw & Brown-Welty, 2009). Considering the size of the NAIA collegiate student-athlete population, alpha level (0.05) confidence intervals (95%), statistical test (one-tailed independent samples *t*-test), statistical power (0.8), and effect size (0.5) the minimum sample for this study was 102 collegiate student-athletes (Faul et al., 2007). The effect size used in this study was similar to other studies involving NAIA collegiate student-athletes (Moore & Abbe, 2021).

Sampling

Researchers utilized a cluster sampling procedure to identify collegiate student-athlete participants. The clusters included each of the varsity sports offered by the NAIA in each gender, and then teams were randomly selected from these clusters (Nguyen, 2021). This approach ensured all member institutions participating in various sports had an equal opportunity for inclusion in the survey. In total, the survey was sent to 1,800 collegiate student-athletes from over 30 NAIA member institutions. The final response rate for this study was 20.1%.

Participants

Voluntary collegiate student-athletes aged 18-years-old or older and attending an NAIA member institution participated in the study (n = 361). The data for all participants was used in the analysis. Most participants were 18-21 years old (53.5%, 46.5% indicated being over the age of 21). Survey participants were primarily juniors (30.7%, 23.8% sophomores, 23.1% first years, 22.1% seniors or graduate students). More women completed the survey (59.8%, 40.2% men). The largest percentage of participants were White/Caucasian (55.4%, 21.9% Hispanic or Latino, 14.9% Black or African American, 6.6% multiracial, 1.2% from other groups). Participants recorded which NAIA athletic team they were primarily affiliated with (20.2% baseball, 19.9% soccer, 12.5% track volleyball, 8.0% softball, 6.4% cross country, 6.1% basketball, with all other sports being under 5% each [e.g., football, bowling, cheer, dance, track and field, swimming and diving, golf, tennis, and lacrosse]). Participants were further examined regarding NAIA college/university demographics (See Table 1).

Table 1.
NAIA Institutional Demographic Information

University Demographic	%
Private	20.2%
Public	79.8%
Suburban	33.3%
Urban	33.9%
Rural	32.8%
Faith Based	62.9%
Non-Faith Based	37.1%

Participants also responded to whether or not they received mental health training from their college or university before participating in their sporting season. The largest majority (n = 229, 63.7%) indicated they did not receive such training. The other 36.3% (n= 132) indicated they did receive some form of training.

Measures and Instruments

Collegiate student-athletes completed a web-based instrument that consisted of the following: (1) demographic questionnaire (see above demographics) and (2) Patient Health Questionnaire (PHQ-9). The PHQ-9 is a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders (Kroenke et al., 2001). It is used to make criteria-based diagnoses of depressive and other mental disorders commonly encountered in primary care. This is a nine-item depression module upon which the diagnosis of Diagnostic and Statistical Manual (DSM) depressive disorders is based. Reliability, predictive validity, and sensitivity of the tool have indicated it has sound psychometric properties. Internal consistency of the PHQ-9 has been shown to be high (American Psychological Association, 2023). The reliability and validity of the Chinese version of the PHQ-9 as a depression screening tool have been confirmed through extensive studies conducted in Hong Kong (n = 6028) and Taiwan (n = 1954) (Yu, 2012). In bolstering its efficacy, additional studies conducted in China (Chen, 2010; Laks, 2016) have provided further evidence supporting the effectiveness of the PHQ-9 in identifying and assessing depression. There is precedent for using the PHQ-9 in research with collegiate student-athletes (DaCosta et al., 2020; LoGalbo et al., 2020).

Data Collection

Researchers identified athletic trainers through the NAIA database to establish contact information. Athletic trainers provided survey information to their assigned collegiate student-athletes. Athletic trainers did not receive incentives for their participation and were prompted to send reminder emails to their college athletes on three occasions throughout the data collection process. It is unsure if all athletic trainers provided the survey to their assigned collegiate student-athletes. Collegiate student-athletes were made aware that their datum was anonymous to try and encourage participation. This approach was successful in other NAIA research efforts (Moore & Abbe, 2021).

The research team believed the athletic training staff would provide consistent help with data collection across NAIA institutions. Athletic training staff received the list of teams from their institution for inclusion in data collection. Researchers provided athletic training staff detailed instructions for data collection and a copy of the informed consent. Athletic training staff were asked to distribute the electronic survey to their collegiate student-athletes. Collegiate student-athletes were able to opt-out of the survey at any time. Survey data were collected on a voluntary basis. The survey took approximately 10-15 minutes to complete. Once data was collected across NAIA institutions, researchers imported survey results into a statistical software program (SPSS 28) on a secure, private platform.

Data Analysis

Researchers utilized descriptive statistics to provide details about the sample and overall survey results. Researchers used inferential statistics to infer information from the sample data to the overall NAIA college athlete population. For this study, the independent variable was the presence or absence of mental health training. The dependent variable was the composite score on the PHQ-9. Researchers used an independent sample *t*-test for this study. There was no missing data for this study.

Results

Researchers conducted an independent sample *t*-test (assuming equal variances) to determine the impact of mental health training prior to sport participation on a collegiate student-athletes' self-reported depressive symptoms. The assumption checks for using a *t*-test were deemed tenable. The 230 collegiate student-athletes not receiving mental health training before participating in their sport ($M = 16.21$, $SD = 5.60$) compared to collegiate student-athletes receiving training ($M = 14.31$, $SD = 4.73$) demonstrated higher scores on the PHQ-9, $t(359) = 3.28$, $p < 0.001$. This indicates those not receiving training reported more depressive symptoms than collegiate student-athletes receiving training. The effect size was medium, with a Cohen's d of 0.36.

The minimum clinically important difference (MCID) between collegiate student-athletes receiving mental health training versus those that did not receive mental health training was not clinically significant. The MCID for the PHQ-9 is 3.0 to 3.7 (American Psychological Association, 2023). The difference in clinical significance between collegiate student-athletes who underwent mental health training and those who did not was found to be minimal in terms of the minimum clinically important difference (MCID). This suggests that the observed disparities in mental health outcomes between trained and untrained collegiate student-athletes did not meet the threshold considered clinically meaningful according to established criteria for depression severity change. However, according to the PHQ-9 scoring scale collegiate student-athletes receiving mental health training had an average score in the moderate depressive category, while those not receiving mental health training had an average score in the moderately severe category.

Discussion

This exploratory study investigated the reported depressive symptoms between two groups (group receiving mental health literacy training and a group that did not) of NAIA collegiate student-athletes using a web-based survey design. This outcome was of particular interest to researchers because awareness about mental health literacy can decrease self-stigma, including the negative attitudes and internalized shame collegiate student-athletes may have about living with a mental illness (Lam, 2014; Moore, 2017; Moore et al., 2022; Walker et al., 2010). The results of the independent sample *t*-test revealed a significant difference in self-reported depressive symptoms between collegiate student-athletes who received mental health training before participating in their sport and those who did not. As revealed in this study, the mean PHQ-9 score for collegiate student-athletes who did not receive mental health training ($M = 16.21$, $SD = 5.60$) was notably higher than for those who did receive training ($M = 14.31$, $SD = 4.73$). This suggests that, on average, collegiate student-athletes who did not undergo mental health training reported experiencing more severe depressive symptoms compared to their counterparts who received training. However, it is critical to note that the lower PHQ-9 scores among collegiate student-athletes who received training suggest that such interventions may play a crucial role in promoting mental well-being in this population. These findings are consistent with research conducted by Anderson et al. (2023), who examined the Sports Mental Health

Assessment Tool 1 (SMHAT-1) among Team USA athletes. Their study similarly emphasized the significance of integrating mental health interventions into collegiate sports programs to foster the overall well-being of student-athletes (Anderson et al., 2023).

Furthermore, results from *t*-value of 3.28 with 359 degrees of freedom indicated the magnitude of the difference between the two groups. In the context of this study, the *p*-value being less than 0.001 indicates that this difference is statistically significant, meaning that it was unlikely to have occurred by chance. These findings highlight the potential efficacy of mental health training in mitigating depressive symptoms among collegiate student-athletes. Existing studies revealed that mental health literacy improves help-seeking behavior (Gorczyński et al., 2024; Moore et al., 2022). Knowing when to seek help for mental health challenges and being willing to do so is important for recovery. Mental health training often addresses these issues as this is crucial for the well-being of collegiate students-athletes. In the present study, the researchers were curious about the percentage of collegiate student-athletes who participated in mental health training and the relationship between participation in training and self-reported depressive symptoms. Of the 361 NAIA college athletes surveyed, 63.7% reported they had not received mental health training before beginning their college sport. This was a surprisingly high percentage, leading researchers to wonder whether collegiate student-athletes had mental health training but did not recognize it as that or did not transfer what was learned to participation in athletics.

Student-athletes who participated in mental health training reported fewer depressive symptoms. This finding supports a prior study by Lam (2014). Lam found collegiate student-athletes that lacked mental health literacy were at an increased risk of depression. However, the relationship between mental health training and depression are still somewhat unclear and raise questions that may guide future research, such as the following:

Does mental health training provide collegiate student-athletes with feelings of control over depressive symptoms? Does the increased knowledge of mental health literacy that accompanies mental health training, make depressive feelings less urgent? What methods of instruction are most effective? Are people who are literate in mental health able to recognize signs and symptoms of depression sooner and seek help or engage in effective self-care strategies before symptoms escalate? These future studies are pivotal for helping the NAIA promote the safety and well-being of their collegiate student-athlete population. These studies also develop initial studies of this nature into studies that can impact practice at the micro and macro levels.

Study Limitations

First, while efforts were made to decrease discomfort with the survey, it is possible collegiate student-athletes felt pressure to respond in particular ways out of personal and/or athletic concerns. This raises concerns about a halo effect. Second, this study relied upon self-reported data. Without having the ability to verify participant responses, there was no way of knowing the legitimacy or honesty of participants' responses. This brings into question recall bias. Third, the study was unable to control for the multiple covariates or confounding variables that influence a college athlete's mental health. Therefore, as a remedy towards addressing these limitations, the researchers propose the following suggestions for future research and these include: (1) conducting a comprehensive study to investigate the historical context of mental health, (2) analyzing the significance and implications of self-reported depressive symptoms

prior to mental health training (3) examining the extent of engagement in current mental health services and practices, and (4) exploring the variations in mental health training approaches across schools with regard to race, ethnicity, gender, sexuality, and religious factors

Conclusion

The conclusion that collegiate student-athletes who participate in mental health training report fewer depressive symptoms underscores the potential value of mental health training. The result of this study indicates the need to provide mental health training to collegiate student-athletes, which really should include both pre-participation and consistent training throughout their college athletic career. We strongly recommend this ongoing training to ensure collegiate student-athletes recognize signs and symptoms of mental health issues and know how to respond appropriately, seeking help for themselves or teammates.

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