Beyond the Hashtags: The Impacts of Self-Promotion and Social Media on Sleep and Mental Health among Student-Athletes

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There has been a significant increase in mental health concerns among student-athletes in recent years. Several factors can contribute to this issue, such as inadequate sleep, social pressures, and the impact of social media. Among student-athletes, social media has become an integral part of their daily routine, particularly for those who aspire to pursue careers in sports after graduation. Self-promotion can be a great way for student-athletes to build their personal brand and connect with fans, but it can also increase the pressure and stress that student-athletes feel to maintain a positive image online. This study included 191 student athletes from various sports at one DII school in the US in one school semester. It emphasizes the importance of balancing self-promotion and social media use while being aware of potential negative effects and practicing proper sleep hygiene and time management. This study also touches on various other factors that positively or negatively impact the mental health of student-athletes, and the strongest significant negative relationships between self-promotion and mental health.

Key words: mental health, student-athletes, self-promotion, sleep quality, social media use

Introduction

Mental health among student-athletes has emerged as a particular issue within the National Collegiate Athletic Association (NCAA) over the last few years (Linberg, 2021; Moore, 2017; Sudano & Miles 2017). The well-being of students is influenced both directly and indirectly by various factors, including school obligations, family, social pressures, and interactions with modern technology, which plays an important role in sports today; from helping keep scores to helping athletes recover and being part of their personal lives (Barnard, 2016; Biggins & Holley, 2022). As a part of that, social media and internet "have become a space in which we form

and build relationships, shape self-identity, express ourselves, and learn about the world around us; it is intrinsically linked to mental health" (Royal Society for Public Health, n.d.). According to Sanderson (2018), social media has become more present and an important part of student-athlete's life, a form of a daily routine. On the other hand, social media has supported student-athletes with the chance to communicate with the general public showing their sport abilities and results, potentially paving the way for future career opportunities in the sports industry.

There are many different types of social media services that users can use, such as Facebook, Instagram, Twitter, and Instagram Stories, as well as connecting with other people, including friends, family, and celebrities (Green, 2016; Ma, 2018). As well as connecting with fans, promoting their personal branding, and promoting themselves to potential employers and sponsors, athletes use these platforms to communicate with and build their fan bases. Although social media provides several benefits to student-athletes (Park et al. 2020), it also carries several risks, including negative comments and cyberbullying, which can have a negative impact on their mental health (David et al, 2018; Mishna et al., 2019). As such, it is crucial for student-athletes to understand the potential risks and to utilize social media in a responsible and beneficial way (Sanderson, 2018). According to Neisser (1997), self-promotion is a dynamic psychosocial construct that is based on shared interpretation of the portrayed self. To create and manage a better impression of themselves, individuals develop a controlled information sense of self (Leary & Kowalski, 1990).

Modern technology allows and offers an easy and accessible way to communicate with the public and to enhance self-promotion (O'Sullivan, 2000). With Name, Image, and Likeness (NIL) officially approved in 2021, it is important to monitor an increase in the use of social media and possibly social pressures associated with self-promotion to learn of the impact (if any) on student-athletes' mental health. According to Yang et al. (2007), most data related to mental health among student-athletes were collected in Division I (DI) where NIL is more present, although it does occur at all NCAA divisions. Self-promotion on social media is a common practice among student-athletes today. Due to this, it is crucial for student-athletes to be aware of rules required regarding NIL in their state and school. Student-athletes need to pay close attention to the rules regarding accepting gifts or compensation for social media activities to avoid breaking any rules. Participating in NIL will increase the need for self-promotion on social media. The pressure to maintain a constant positive and consistent presence on social media may affect the mental health of the student-athlete. Gulavani et al. (2023) observed gender-based differences in how DI female and male student-athletes expressed emotions on platforms like anger and joy to identify the differences in a more straightforward manner. Additionally, a study conducted by Lauer et al. (2018) reports that female student-athletes in Division II (DII) report difficulty focusing when concerned with their appearance and what they wear while practicing and competing in sport.

There is, therefore, a lack of knowledge and understanding among student-athletes about how personal branding is perceived and how it is used, as well as the negative effects of self-promotion on social media (Park et. al., 2020) and how that

directly can impact mental health and sleep in DII where NIL is less present and that can have an additional pressure on students. Results from this study can be used to help athletic departments and wellbeing staff to develop programing that can help student-athletes to maintain mental-health with the proper use of social-media for self-promotion. It is also important to understand if there are any differences among gender and the use of self-promotion in DII division, since a similar study is only done at the DI level.

Literature Review

Social Media Use and Self Promotion among Student-Athletes

In addition to generating fans, reaching out to the public, and promoting themselves to potential future managers and contractors while building their personal brand, self-promotion on social media is a potential way for student-athletes to gain exposure to their fans, reach out to the public and reach their audiences (Edmiston, 2016). Peters (1997) explained in his book *The Brand Called You* how personal branding is a marketing tool designed to help individuals, in this case student-athletes, to promote themselves to carry out their career goals in a way that allows them to be successful. Moreover, Peters (1997) contended that the positive aspects of branding are not just for celebrities like professional athletes in the NFL or NBA. Branding is also for anyone who is trying to create their own personal brand, regardless of if they are celebrities or not; and that is more present in universities sports and DI, DII, and DIII.

DI is a division of colleges with the largest athletic budgets, the widest range of scholarship opportunities, and a greater amount of media compared to DII and DIII. Even though there is a difference in the support provided by schools to these DII athletes, there is no doubt that they are highly skilled and dedicated individuals who dedicate countless hours to the sports they play (Menaker et al., 2023; Ryan et al., 2022). The NCAA's approval of NIL had a direct impact on student-athletes in DII sports because there is a significant difference between exposure and media coverage in DII sports compared to DI sports, and this, in turn, has resulted in DI sports and athletes receiving better exposure, sponsorships, and TV deals compared to DII sports. Therefore, as a result, student-athletes in DII may have a greater need to be creative, present, and interactive on social media. With this self-promotion, they may be able to create more opportunities for themselves, which can have both positive and negative effects. Furthermore, the act of self-promotion can assist students in boosting their self-esteem as well as their confidence by allowing them to share their accomplishments with others who support them and by connecting them with others. By doing so, student-athletes can develop their own personal brand and demonstrate their talent to potential employers and sponsors in the future (Abeza et al., 2017; Hood et al., 2014). Thus, a student-athlete who has a successful personal brand will be more likely to be successful in his or her career, earn a higher salary, and/or have a greater amount of public appearance that are closely connected with popularity (Arai et al., 2014).

In recent years, female college sports have surged in popularity, exemplified by the growing excitement around events like March Madness for women's basketball. Notably, teams like Iowa and LSU have captured the spotlight, contributing to the heightened recognition and support for women's student-athletics. Harris, et al. (2021) stated that NIL will have lasting effects, though possibly not obvious at first, on student-athletes' wellbeing; stating that they (the student-athletes) will be responsible for managing their own brand. It is imperative that these student-athletes are educated in how to operate this new aspect of their lives as many of them have never experienced the business aspect of sport. Furthermore, due to their added roles student-athletes may encounter, the athletic healthcare team should also be equipped to assist the student-athlete in navigating this experience. While there are positive affects for the student-athletes, Hollabaugh, et al. (2023) note there may be negative affects due to pressures from the media, team dynamics, and a growing financial portfolio that could potentially reduce desire to be the student in "student-athlete".

Sports, travel, and personal growth can be effectively highlighted through photos as powerful visual mediums that are heavily used today, more often from a younger generation. Student-athletes most of the time highlight sports arenas as a place of intensity and excitement, showcasing the energy and excitement of sports competitions. Photographs provide a glimpse into breathtaking places, transporting viewers to new and intriguing places. Photographs and videos serve as valuable documentation tools in addition to their immediate impact (Taylor, 2020). Athletes can use them to track their progress over time, enabling them to see their journey of growth and improvement. Athletes can also use these to highlight their achievements in hopes of finding a sponsor, show their personal brand, and obtaining more "likes" if displayed on social media. According to Geurin (2017), many elite female athletes used social media as an interactive tool for interaction with fans and to share details about their athletic and personal lives with followers. At the same time Geurin (2017) reported that they appeared to have been concerned about producing authentic posts to directly engage them. Moreover, self-promotion on social media can also increase the pressure and stress so student-athletes may feel, to perform at a high level and maintain a positive image online (Brougham, 2021). It can also expose them to negative comments and criticism from others, which can negatively impact their mental health. Additionally, the constant comparison to their peers on social media can make them feel inadequate and might lead to anxiety and other mental threats (Gulliver et al., 2012).

Mental Health among Athletes

In recent years, elite athletes (including professionals and Olympians) have confronted substantial mental health obstacles. Naomi Osaka competing then withdrawing from the 2021 US Open and Simone Biles competing in the 2021 Olympic games, and also withdrawing, are both examples of mental health issues among athletes, then also examples of needing to overcoming the stereotype that a strong physical body automatically correlates with a strong mental one. Despite this, both athletes faced mental health challenges that prevented them from finishing their events

(Walters, 2021). Reardon and co-authors (2019), pointed out that athletes differ from the general population in many ways, including attitude and personality factors such as narcissism and competitiveness, as well as the barriers to seeking help (Gulliver et al., 2012). It has been widely reported that many other elite athletes like Hope Solo, Michael Phelps, Victoria Pendleton, Kevin Love, and Jonny Wilkinson have struggled with mental health challenges. As a result of social media and recent events, the public has become more aware of the challenges elite athletes face regarding mental health challenges (Moesch et al, 2018). However, at the same time mental health issues among student-athletes have gained significant attention as it pertains to their well-being, social connections, and inclination to seek assistance (Gulliver et al., 2012; Walton et al, 2021). As a part of the NCAA survey conducted in 2020, collegiate athletes, from Division I, II, and III, were asked about their mental health in the survey. As a result of this survey, 38% of females reported that they felt mentally exhausted almost every day and 16% reported being lonely almost every day if not constantly. Another 10% reported feeling unmotivated (Johnson, 2022). As reported in the survey, 22% of male athletes reported feeling mentally spent virtually every day of the week (Johnson, 2022). According to Brown et al., (2022), female students and DI students-athletes face mental health problems such as depression, anxiety, and stress. At the same time, the authors address the needs of conducting similar studies in other divisions such as DII and DIII, to learn if they are facing similar problems. There are several challenges associated with managing DII athletics, including the lack of resources and support services that DI universities have in comparison to DI universities, as Ryan et al., (2022) identified. During the Fall 2023 NCAA meeting, the NCAA President Charlie Baker warned that the absence of NIL rules would negatively impact smaller colleges as well as DII and DIII, which put greater pressures on student-athletes (Poff, 2023). This would add to the challenges that all NCAA divisions are facing.

Research has identified various factors that positively or negatively impact the students' condition, performance, and lived experiences (e.g., Egan, 2019; Reigler et al., 2019). These factors include social relationships and support, perceptions of mental illness, gender-specific experiences, long-term and short-term consequences of injuries (especially ankle injuries), anxiety and depression symptoms, racial disparities, and eating disorders. A substantial amount of literature is present on the psychological distress that accompanies collegiate sports, as well as its impact on the mental health and well-being of athletes but not many on mental health and the use of social media (e.g., Penrose, 2013). According to Ryan and co-authors (2018), student-athletes encounter various stressors while playing sports that are linked to mental health concerns. These stressors can include negative relationships with coaches or teammates, pressure to perform academically, a lack of coping skills to manage symptoms of anger and anxiety, perceived level of ability, and drug/alcohol use. However, the authors also reported some positive mental health outcomes that can result from sports, such as increased self-esteem, self-confidence, and stronger social connections and support systems (Ryan et al., 2018). Athletes who experience these benefits are more likely to effectively cope with stress and anxiety through

their social support systems than those who do not. Earlier studies have shown that nearly a quarter of student-athletes experience exhaustion from sports-related mental demands, as well as anxiety related to performance or competitiveness (Ryan et al., 2018).

Student-athletes face sleep health challenges according to another study published by the American Academy of Sleep Medicine (Rabin et al., 2020). The Sports Sleep Screening Questionnaire was administered to a diverse group of student-athletes in this study. A survey conducted among 1,055 participants found that approximately 25% experienced clinically meaningful sleep problems. Furthermore, athletes who were in their second or third year reported poorer sleep than those who had just entered the program. In assessing data using the Sleep Difficulty Score (SDS), researchers found that only 34.4% of those surveyed had no sleep problems, while 41.9% had mild sleeping troubles, 18.3% had moderate sleeping troubles, and 5.4% had severe sleeping troubles. The results of this study highlight the urgent need to improve sleep among university-level student-athletes (Rabin et al., 2020).

Sleep Quality among Student-Athletes

Sleep and mental health are closely linked for every student, especially student-athletes. Adequate sleep is essential for maintaining overall physical and mental well-being and is particularly important for student athletes who are engaged in regular physical activity and training (Rabin et al., 2020). Lack of sleep can negatively impact an athlete's performance and recovery, making them more prone to injury and illness. Many studies have found that university students need better sleep health. Carter et al. (2016) found that despite 63% of participants self-reporting their sleep quality as "very good," only 8.1% obtained an average of at least 8.5 hours of sleep per night, the recommended amount according to the National Sleep Foundation.

Most student-athletes have difficulties getting the recommended amount of sleep as a result of the demands of their sport, academic schedule, and social life, thus making it hard for them to sleep properly (Grander et al., 2021). Sleep quality can have a negative impact on mental health, especially depression, anxiety, and other mental health problems like anxiety disorder, attention deficit disorder, and many other mental health conditions due to the short sleep duration and poor sleep quality of the individuals (Grander et al., 2021). However, sometimes it is difficult to do with so much schoolwork that needs to be completed (Kaier et al., 2016; Rabin et al., 2020). For student-athletes, it is vital that they place a priority on sleeping to ensure they can perform at their best. Many studies have agreed that students should seek help if they are experiencing ongoing sleep issues or if they are feeling the negative impact of sleep deprivation on their mental health (Egan, 2019, Rabin et al., 2020). Schools indicate that athletic departments and coaches should also be aware of the importance of sleep for student athletes and provide resources and support systems to help them improve their sleep habits.

The Impact of Self-Promotion on Mental Health among Student-Athletes

According to the American College Health Association (2019), there was a sig-

nificant proportion of undergraduate students experiencing mental health challenges. According to the pre-Covid era data, 66.4% of students felt overwhelming anxiety, 46.2% felt so depressed it hindered their ability to function, and 85% felt exhausted from no physical exertion. Moreover, 2.3% of the students in the sample reported attempting suicide, and 14.4% disclosed considering suicide seriously. Finally, the NCAA 2021 Student-Athlete Wellbeing Study data indicate that 91% of men and 95% of women student-athletes felt overwhelmed by all they had to do in the last month (NCAA, 2020). There is an urgent need for attention and support in this critical area among students considering these statistics. It is critical for students and student-athletes to find balance between sharing their accomplishments and maintaining a positive image online, while also being mindful of the potentially negative effects that social media can have on their mental health. Although these statistics are for the general student body, student-athletes are also "students" and will also have these same challenges, plus whatever challenges being a student-athlete may offer (Moore, 2017). Therefore, athletic departments should have resources and support systems in place for student-athletes to discuss mental health concerns. The study by Gulavani et. al. (2023) in the "Journal of Issues in Intercollegiate Athletics" examined the impact of NIL regulations on college student-athletes' hedonic well-being. The researchers found a positive correlation between the implementation of NIL policies and the overall satisfaction and happiness of student-athletes. The ability for the student-athlete to monetize their name, image, and likeness positively influenced their sense of empowerment and control over their careers and financial prospects. While this study highlighted the positive benefits of NIL policies for the student-athlete, it is important to examine the effects of NIL on wellbeing. However, Brougham (2021) stated that the promotion of student-athletes on social media and publicly can have both positive and negative effects on the mental health of these students. Elaborating further on team dynamics, the Social Comparison Theory developed by Leon Festinger (1954) ultimately states that people will evaluate their own opinions and desires by comparing themselves to others. This theory has triggered many modern theory frameworks, and measurement scales that have been used to explain behavior that drives people to evaluate themselves. Athletes will continue to compare themselves. In addition to comparisons that occur at the competitive level, some athletes may also compare themselves academically and via self-promotion on social media. Jiang and Wang (2020) state that that mental health practitioners should consider reducing negative social comparisons in assisting to treat depression. This emphasizes the point previously discussed that the student-athletes healthcare team should be prepared in navigating their experiences. However, this study focused on self-promotion and its impact on mental health and sleep quality.

Among student-athletes, Carter et al., (2016), noted that examining both the cause and the effects of sleep problems is important. The study revealed that 75% of the participants had poor sleep quality and that cell phone use has a negative effect on sleep quality. However, there are many different aspects of phone usage that can affect sleep and overall health, not limited only to phone usage before bed (Akca et al., 2019). Using technology before bedtime has started to be a part of our daily

routine. Johansson et al. (2016) looked at many different forms of technology people use before bed, including video games, using the internet, texting, phone calls, and so forth. The use of the internet, social media, personal email, instant messaging or skype, games with crude humor or violence, videos on mobile devices, and phones were significantly associated with excess daytime sleepiness. Interestingly, the frequency of being awoken by a cell phone during the night was associated with all three negative outcomes. This research solidifies the link between technology usage and inadequate sleep. With sleep being vital for optimal physical and mental health, growth, learning, memory, and peak academic performance, it is important that something is done to improve sleep health among student athletes. Brougham (2021) explored the correlation between social media and how it can impact student-athletes' mental health and wellbeing. A survey was conducted across all three NCAA Divisions among 94 student-athletes Brougham (2021). Specifically, it was shown that while athletes used social media to escape it led to procrastination and overall negative impacts on their self-esteem, depression, and anxiety. Social media usage can have a significant correlation to academic success, sleep, and mental health. According to Bashir and Bhat (2022) social media can have negative effects on mental health such as depression and anxiety. It is reported that social media is responsible for harassment, stress, and loneliness among individuals, including student-athletes (Bashir & Bhat, 2022). Notably, previous research suggested that nighttime social media engagement independently predicts poorer sleep quality, even after accounting for variables such as anxiety, depression, and self-esteem (Woods & Scott, 2016). Furthermore, NIL opportunities are present in all divisions, and the DII moto is "Life in the Balance", therefore; balancing all of these new areas with NIL is worth investigating at the DII level. As a result of social media use among student-athletes at all divisions, students may start to engage more in self-promotion to incur more NIL deals. With the increase in device usages while self-promoting, there are signs that are increasingly being recognized that can impact mental health and sleep quality among students. Thus, the purpose of this study was to determine to what extent social media use and self-promotion affect the sleep quality and mental health of student-athletes at DII universities in terms of their sleep and mental health. It is important to note that despite the fact that two variables (Self-Promotion and Social Media Usage) mention social media, their purpose is different. The following research questions guided the study:

> Research Question 1 (RQ1): Is there a significant difference between male and female student athletes in their self-promotion behaviors on social media platforms?
> Research Question 2 (RQ2): Do the use of self-promotion and social media use among student-athletes explain their mental health and sleep quality? (See Figure 1)

In addition to the literature review, a model and hypotheses were developed for the RQ2, based on the findings of the previous studies, on which this research is based (see Figure 1).

H1: Self-promotion has a significant direct effect on student-athletes' mental health.

H2: Self-promotion has a significant direct effect on student-athletes sleep.

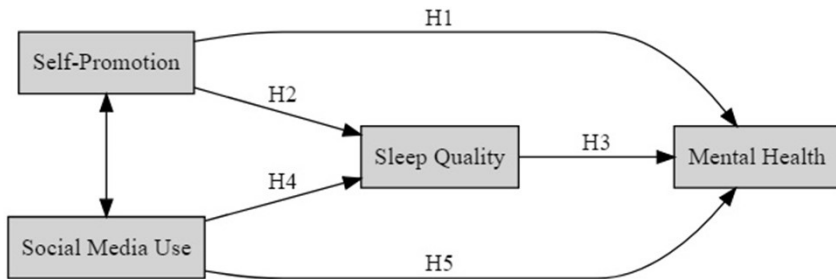H3: Sleep quality has a significant direct effect on student-athletes' mental health.

H4: Social media has a significant direct effect on student-athletes' sleep quality.

H5: Social media has a significant direct effect on student-athletes' mental health.

Figure 1.
Proposed model

Methods

A correlational design was employed in this study with the objective of investigating the relationship between variables among student-athletes. There was a major focus of the study in identifying the predictors, especially with regard to the use of social media and self-promotion practices, that are important to determining student-athletes mental health and sleep quality. A correlational research design, as explained by Creswell (2014), is a method of determining the degree to which two or more variables are related based on the definition and measurement of the relationships. A sample of 191 student-athletes from 14 different sports at a Division II University participated in this study via an online survey after IRB approval was obtained. The purposeful sampling of all student-athletes at one DII school was obtained, and the researchers used email to contact student-athletes directly. The email was sent to approximately 400 students, 18 years and older, that were enrolled as full-time students. To prevent survey bias, existing scales with established validity and reliability were utilized as well purposeful sampling procedure were used, which

minimized the possibility of bias occurring during the data collection process.

A series of multiple regression analyses and correlation analyses were used to determine what predictors impact mental health among student athletes after Cronbach alpha was checked with the SPSS 27 and Jamovi programs. An independent sample t-test was performed to compare self-promotion and social media among gender differences determining student athlete's mental health state and how much social media, self-promotion, and sleep quality have an influence on that. Path analysis was used to explore the direct and indirect effects between mental health, sleep quality, social media use, and self-promotion.

Instruments

Individuals engaging with social media platforms such as Facebook, Instagram, or TikTok often find themselves immersed in the passive consumption of content, scrolling through their Newsfeeds, and tracking the discussions among friends. While social media holds the promise of expanding horizons, there is a growing apprehension regarding its potential impact on user mental health and well-being. The prevalence of social media utilization is particularly noteworthy among adolescents, with a marked increase in overall and evening usage. Emotional connections to social media have been identified as a contributing factor to various issues, including diminished sleep quality, decreased self-esteem, and heightened levels of anxiety and depression. To investigate relationships, four variables were created: Social Media Use Scale, Mental Health Scale, Pittsburgh Quality of Sleep, and Self Promotion. However, all scales were adapted from previous studies. The first part of the survey included demographic information. The second part used the social media usage scale (Taylor, 2020), followed by the Self-promotion scale (Taylor, 2020) as well as Pittsburgh Sleep quality Index (Buysse, et al., 1989) and the MH Inventory-5 (Berwick et al., 1991).

Pittsburgh Sleep quality Index. Pittsburgh Sleep quality Index (Buysse, et al., 1989) is a standardized self-administered questionnaire for the subjective assessment of sleep quality over the past month. It comprises 19 items forming seven components of sleep: subjective quality of sleep, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction, suggested to be measured in 4-point Likert scale [1(*not during the past month*), 2 (*less than once a week*), 3 (*once or twice a* week) and 4 (*three or more times per week*)]. Some of the questions that we asked: "Can't get to sleep in 30 minutes, have bad dream and during the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")". Furthermore, the Pittsburgh Sleep Quality Index has demonstrated its validity across diverse patient groups and in various languages, as supported by multiple studies conducted in different populations, age groups, culture, and medical conditions (Backhaus et al., 2002; Moghaddam et al., 2012; Zak et al., 2022).

Mental Health Inventory-5 (MHI-5). The Mental Health Inventory-5 (MHI-5) has been developed by Berwick and co-authors (1991) as a means of providing a comprehensive and concise picture of the mental well-being of diverse populations and settings. The MHI-5 is a shorter version of 38-item Mental Health Inventory

(Veit & Ware, 1983) containing distress and psychological well-being. However, the MHI-5 even it's a short version of 38-item Mental Health Inventory is reliable and valid tool for assessing mental health and provides a quick assessment of it (Ware & Sherbourne, 1992). Students in this study were asked to assess their mental state over the last month by answering questions (e.g., "During the past month, how often were you in a good mood?") This was assessed using a five-point Likert scale, ranging [from 1(*None of time*) to 5 (*All of the time*)], with a higher score denoting diminished mental health and a lower score denoting the opposite. The primary purpose of this short scale is usually used for short screening and as an initial step to direct individuals towards mental health professionals for further and more comprehensive evaluation (Epstein et al., 2017; Hosseini, 2023).

Self-promotion Scale. Self-promotion can be defined as an impression strategy, aimed at expressing a positive image by emphasizing one's own strengths, contributions, and accomplishments in the context of others, especially those belonging to the student athletic community (Den Hartog, et al., 2020). For this study, we used the questionnaire taken from the existing study by Taylor (2020). This was five items scale. Example of question was "I want to make people aware of my accomplishments" on 5-point Likert scale ranging from "strongly disagree" to "strongly agree". It has been demonstrated that this scale is versatile and applicable to various studies, including tourism, marketing, and narcissism demonstrating its adaptability to assess self-promotion tendencies across a wide variety of fields (Karaca et al., 2022; Taylor, 2020; Rui & Stefanone, 2013).

Social Media Usage. There is a close association between social media usage and self-promotion especially among younger generations. This study used the six item Social Media Usage by Taylor (2020). The questions were: On social media how often do you? (1) "...look through the News Feed; (2) ...look through the conversations your friends are having; (3) ...browse the profiles of others", which were largely based on Koroleva et al. (2010) study. In that study the author used composite reliability for internal consistency with the range from .79 to. 88. A 5-point Likert scale was used: [1(*None of time*) to 5 (*All of the time*)]. All constructs were measured as reflective.

Results

Descriptive Statistics and Correlation

To understand the shape of data and prior to test hypotheses, descriptive analysis was used for statistical interpretation of the population of interest. In total 191 student-athletes participated in this study, with 99 females and 92 males. On graduate level 17 students were identified and 174 students for undergraduate level. At that time 60% of students reported that they were in their season period when games and competitions occurred (Table 1). It was found that, out of the total number of 191 students, 180 students used a cellphone before bedtime, while 11 students did not use a cellphone before bedtime, choosing instead to use other technology such as a TV, iPad, and other electronic devices to pass the time instead.

Table 1
Descriptives information

Features		Population	Proportion (%)
Gender	Female	99	52.1
	Male	92	47.9
Educational background	Undergraduate	174	91.1
	Graduate	17	8.9
In season	No	78	41.1
	Yes	113	59.9

Instagram was identified as a primary cellphone application by 96.3% of the students (female 99, male 87; 7 students did not report using any application), followed by Snapchat and Ticktock as secondary applications. Since self-promotion is closely related to the number of followers, the majority of participants had between 1,000 – 5,000 followers on the most used social media platforms. Furthermore, we found that students with more followers take more naps over the day F (3,185) = 3.75, $p < 0.01$. An independent t-test was performed to compare self-promotion and social media among gender differences and with that RQ1 was answered. The mean value of student-athletes that identify as males ($M = 2.67, SD = .82$) was significantly different from the student-athletes identified as females ($M = 2.94, SD = .77$) for self-promotion t (189) = 2.35, p = 0.02 and for social media, males ($M = 2.24, SD = .46$) and females ($M = 2.66, SD = .53$) with t (189) = 5.84, $p < 0.01$. Both differences showed that self-promotion and social media use were higher is higher among females' student-athletes. Furthermore, there was a significant statistical difference between female and male and report of enough sleep. Male ($M = .83, SD = 1.1$) student-athletes reported that they have more lack of sleep compered to female student-athletes ($M = 1.12, SD = .89$) with t (188) = 4.82, $p < 0.02$. The interaction between gender and each predictor in the hypotheses was examined to investigate any moderating effects of gender on the hypotheses for potential inclusion of gender as a moderating variable in the model in future research. All were nonsignificant except for the relationship between self-promotion and mental health. The interaction effect of gender yielded significance, F (1, 187) = 4.39, $p < .05$, partial $\eta^2 = .10$, indicating that the relationship between self-promotion and mental health was stronger for female student-athletes. Specifically, increased self-promotion for female student-athletes was associated with a larger decline in mental health than was the case for males. These results suggest that gender may moderate the relationship between self-promotion and mental health.

Table 2

Descriptive Statistics for Direct Measure MHSSQ Factors

	N	Mean (SD)	Minimum	Maximum
Mental Health	191	3.69 (.69)	1.80	5.00
Social Media Usage	191	2.46 (.54)	1.00	4.00
Self-Promotion	191	2.81 (.80)	1.00	5.00
Sleep Quality	191	3.18 (.50)	1.36	4.00

All four variables were scaled using Likert-type scales in this study (Table 2). To ensure internal consistency reliability, all scales were computed with Cronbach's coefficient of internal consistency (Gliem & Gliem, 2003). There was a range in the reliability coefficient for this study from $\alpha = .77$ to $\alpha = .83$. In the analysis of the reliability coefficient for this study, Cronbach's $\alpha = .77$ is the lowest value, but still acceptable in terms of its reliability, when looking at the sleep quality measure. A total reliability of $\alpha = .83$ is determined when it comes to self-promotion as well as social media use, which is a good result (Table 3).

Table 3

Cronbach's Alpha (α) for variables

Factors	MH	SM	QS	SP
Number of observed variables	5	6	11	5
Cronbach α of observed variables	.827	.837	.778	.837

A Pearson's product moment correlational analysis was conducted to discern if significant relationships existed between the directly measured variables social media use, self-promotion, sleep quality and mental health among student-athletes. Results revealed statistically significant negative relationships between self-promotion and mental health ($r = - .349, p < .005$) and significant negative relationship between sleep quality and self-promotion ($r = -.275, p < .005$) (Table 4).

Table 4

Relationship between SSQ Factors and Mental Health

	1	2	3
Mental Health			
Social Media Usage	-.135		
Self-Promotion	-.349**	.540**	
Sleep Quality	.486**	-.148**	-.275**

** = $p < .005$

Proposed Hypothesized Model

To answer the first research question, RQ2 a path analysis was constructed using mental health variable, self-promotion, and sleep quality. The path coefficient from the sleep quality to mental health had the strongest regression standardized weight of .421. The path from self-promotion to mental health and sleep quality had negative weight -.272 and -.277; therefore, the direct effect of social media usage was a good predictor for sleep quality but not direct for mental health; it was not statistically significant with $p = .304$. However, all other paths were statistically significant (Table 5). The model chi-square x^2 (1) = 80.5, p= <.005. The model explains 29% of the variation in mental health.

Table 5

Analysis of hypotheses

Hypothesis – Relation path	β	P-value
H1: Self-Promotion → Mental health	-.272	.000***
H2: Self-Promotion → Sleep	-.277	.000***
H3: Sleep → Mental health	.421	.000***
H4: Social Media → Sleep	.003	.969
H5: Social Media → Mental health	.074	.304

=p>0.05; *=p <0.05; **p<0.01; ***=p<0.001

Model Modification

The proposed hypothesized model was modified after analyzing the first path model where we discovered that self-promotion was more explanatory than the use of social media where we focused on interaction with others, following peers, and communicating with close ones. We decided to look at the more specific mediation

model excluding social media use. The direct statistically significant effect $p<.001$ explains about 66% of the relationship.
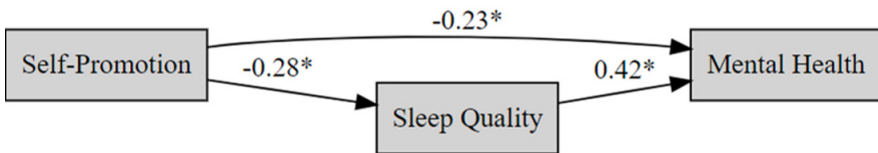
Table 6.

Unstandardized Mediation Estimates

Effect	Label	Estimate	SE	Z	p	% Mediation
Indirect	a × b	-0.099	0.029	-3.40	<.001	33.3
Direct	c	-0.198	0.054	-3.65	<.001	66.7
Total	c + a × b	-0.298	0.058	-5.14	<.001	100.0

Figure 2.

Standardized Estimated Mediation model.

The path coefficient between sleep quality and self-promotion is statistically significant and negative ($\beta = -.275$, $p < .001$). Further, the path coefficient between mental health and self-promotion is also statistically significant and negative ($\beta = -.232$, $p < .001$). The direct effect path between mental health and sleep quality, however, is positively significant ($\beta = .422$, $p = <.001$) what was expected; better sleep quality reflects better mental health. The unadjusted R^2 value for the endogenous variable mental health is .28, which indicates that self-promotion explains 28% of the variance in mental health. The significant negative indirect effect indicates that the relationship between self-promotion and mental health is partially mediated by sleep quality. This finding supports the notion that sleep quality plays a role in explaining the association between self-promotion and mental health ($b = -.10$, SE = .02, $p = <.001$) (Table 6).

Table 7.

Mediation Results for the Relationship between Self-Promotion and Mental Health mediated by Sleep Quality

Dependent	Predictor	Un-standardized Estimate	SE	β	Z	p
Sleep Quality	Self-Promotion	-0.171	0.043	-0.275	-3.95	<.001
Mental Health	Self-Promotion	-0.198	0.054	-0.232	-3.65	<.001
Mental Health	Sleep Quality	0.574	0.087	0.421	6.63	<.001

Thus, this study found that self-promotion has a relationship on D-II student-athletes' mental health as well as on the sleep quality. From there, the need for self-promotion gets more important than social media usage, where students are more focused on promoting themselves than hanging out on social media, chatting, and reading the comments of others.

Discussion

It is shown in previous literature, student-athletes that attend university face many challenges and stressors, including finding their own identity, adjusting to new environments, meeting academic expectations, coping with an injury, and performing at the highest level of their sports (Barnard 2016; Dyson & Renk, 2006). Being on their own for the first time and with a lack of existing coping strategies, unhealthy habits are often adopted, such as lack of sleep and spending a lot of time on social media (Dyson & Renk, 2006; Mackenzie et al., 2011). With NIL, student-athletes do not only perform in athletics; they also perform on social media, which is what prospective sponsors are seeking and demanding. There is no doubt that social media platforms have become an increasingly important part of athletes' lives, with public access to them all day, every day, and not only for communication with fans but also to generate income and gain exposure for their performances. The downside of playing and competing on "two fields" is that it can have a negative effect on students' health. Among the general student population, a study by Wash (2022) indicates that using social media, such as Facebook, can increase anxiety by 20% and depression by 7% among those who regularly use it. Thus, it is important to understand the importance of self-promotion in DII schools where NIL has started to become a dominant concept among all the student-athletes. However, this study showed a significant threat to student-athletes' mental health and sleep quality. Causes vary – since we focused only on self-promotion and social media usage in this study. To investigate a framework has been established in this study based upon the combina-

tion of four different scales (Pittsburgh Sleep Quality Index, MHI-5, Self-Promotion Scale and Social Media Usage) to examine the impact of self-promotion and social media usage on student-athletes' mental health and sleep quality.

Self-promotion through excessive use of social media can have detrimental effects on student-athletes in terms of increasing narcissistic focus on personal achievements and decreasing genuine connections among them due to excessive self-promotion that becomes more important than social media use. By constantly comparing themselves to others and seeking validation through likes and followers, it may foster a toxic competitive environment, negatively impacting mental health and sleep quality. Sportsmanship, personal growth, and true self-image can be overshadowed by this obsession with self-image, hindering their well-being and influencing their success in the long run. Moreover, it was also found that for self-promotion and social media, the mean value of student-athletes who identify as males was significantly different from the mean value of student-athletes who identify as females, both in terms of self-promotion and social media. A study done by Gulavani et al. (2023) found that there was not statistically significant difference among women college sport and men college sport; however, Gulavani et al. (2023) pointed out that athletes in DI women's sports expressed more joy than those in men's sports on social media such as Twitter (known as X). The present study showed both differences in social media use and self-promotion, and was higher among female student-athletes, with a significant statistical difference between female and male reporting enough sleep. Male student-athletes reported that they have more lack of sleep compered to female student-athletes. On the other hand, the interaction between mental health and self-promotion revealed that higher levels of self-promotion among female student-athletes were associated with lower mental health scores. With that, our first research question was answered: *Is there a significant difference between male and female student athletes in their self-promotion behaviors on social media platforms?*

The answer to our second research question: *Do the use of self-promotion and social media use among student-athletes explain their mental health and sleep quality?* We concluded that self-promotion has a negative effect on mental health and sleep quality with the path from self-promotion to mental health and sleep quality had negative weight -.272 and -.277. Based on the previous studies, increased technology use and frequency of being awoken in the night by a cell phone are associated with waking too early, waking unrefreshed, and daytime sleepiness (Grander et al., 2021; Egan, 2019; Rabin et al., 2020); we also found that those students with more followers on social media have bad sleep quality and they take more naps over the week.

For this study, it was referred to diagnosed and undiagnosed mental health disorders as mental health conditions reported by the student-athletes. Therefore, mental health conditions can arise from things like increases in depression, eating disorders, and suicidal thoughts, along with increased anxiety each day (Arthur-Cameselle et al., 2017; Brown et al., 2022). It is extremely important that support systems are put in place to help these athletes communicate how they are feeling and to know what potentially causes these issues This study's findings provide a better understanding

of the potential factors that drive student athletes' mental health and sleep quality in a world where social media and self-promotion greatly impact current and future sports careers. It is extremely important that support systems are put in place to help these athletes communicate how they are feeling and to know what potentially causes these issues. In his article, Sanderson (2011) highlighted the notion of the need for establishing a more specific policy concerning this issue whilst also pointing out that student-athletes need to understand the dangers and benefits of social media more fully. However, it's important for sports departments to be aware of all the current issues that are affecting student-athletes in their everyday lives and to find ways to help them and provide them with the support they need.

Limitation and Future Study Opportunities

The timing of the distribution of the survey was one of the major limitations of this study. The survey was conducted at the end of the fall semester, when only half of the student-athletes' sports were in the season and the end of semester usually causes a significant amount of stress for the students. As in this case, it is important to mention the issue of social desirability response bias, which is common among scales that assess mental health, substance use, and social network factors (Latkin et al., 2017). From theoretical perspective as a part of analysis, Exploratory Factor Analysis (EFA) was used to identify factor structure among variables Self-Promotion and Social Media Use (Table 8.). The item "I am more likely to post photos of myself online in locations that make me look sophisticated" showed a better fit with Self-Promotion variable than Social Media usage, however results remained consistent. Even though two items of Self-promotion scales involved social media usage, the EFA made clear that Self- promotion items were a strong factor. It would be good for future and similar investigations to pay more attention to the measurement of these constructs, particularly as social media continues to change.

For future research, this study could be improved by acquiring respondent data from other universities and different division, comparing the data from Division I student-athletes where NIL is more present to those who are DII and DIII divisions where NIL is less present with a bigger sample size. Implementing a mix-methods study with semi structured interviews can provided better understanding of this important topic. Gaining more data could provide better understanding about the difference in NCAA among student-athletes and new trends related to social media and self-promotion. This comparison could also provide a more accurate interpretation of the levels of mental health condition and sleep quality in student-athletes when compared to levels of presser with public appearance. Furthermore, the difference between sports could be beneficial for a better understanding of this issue. For example, individual sports such as tennis versus team sports such as football and basketball.

Table 8

Factor Loadings for Self-Promotion and Social Media Use.

	Factor	
	1	**2**
I want to make people aware of my accomplishments.	0.8635	
I want to display my accomplishments.	0.8368	
I want to make things in my life appear better than they are.	0.7180	
When I am at a competition, I post it on social media.	0.6633	
When I travel with my team because of sport, I post photographs on social media.	0.6622	
I am more likely to post photos of myself online in locations that make me look sophisticated.	0.4229	
Check out what friends are up to?		0.7844
How often do you: Comment on friends' pages?		0.7091
Browse the profiles of other people?		0.4393
Look through the conversation friends are having?		0.3510
Send direct messages to friends?		0.3268

Note: Principal axis factoring extraction method was used in combination with a promax rotation

Conclusion

The use of self-promotion through social media by student-athletes has been found to have negative impacts on their mental health and sleep quality, as indicated by the findings of this research study. In addition, this study supports some previous research conducted in the field of mental health and the impacts of modern technology on college students. In order for students to develop alternative strategies to improve wellbeing and social interaction instead of becoming solely dependent on mobile applications, mental health professionals and athletic representatives can play a very important role in order to further their academic and professional career. Findings of this study also provide valuable insight into the delicate balance between promotional activities and student-athlete mental health and sleep quality, which may lead to improved support systems and strategies for athlete welfare in the future. Furthermore, our research found that there was a statistically significant difference with the use of social media and self-promotion between genders among student-athletes. Female student-athletes demonstrated higher use of self-promotion

compared to male student athletes. On the other hand, male student-athletes reported experiencing more sleep deprivation. Significantly, our study emphasizes the disparity in social media usage and self-promotion between female and male athletes. Thus, it's crucial to address this issue differently based on individuals' diverse identities rather than employing uniform approaches.

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