

Investigating Differences in Perceived Stress Between Injured and Non-Injured NCAA Division II Student-Athletes During COVID-19

Direct Original Research

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Abstract

Introduction: Little research has examined perceived stress of injured student-athletes (SAs) during the COVID-19 pandemic. The purpose of this study was to investigate if differences existed in perceived stress between injured and non-injured SAs during the pandemic. It was hypothesized that differences would be seen between the two groups with injured SAs exhibiting higher perceived stress scores.

Methods: 158 NCAA Division II SAs competing on 12 different athletic teams volunteered to complete an online demographics/historical questionnaire and the 10-item Perceived Stress Scale designed to measure the degree to which individuals believe their life has been unpredictable, uncontrollable, and overloaded during the previous month. An independent samples *t*-test was performed with an alpha level of $p \leq 0.05$ to examine differences in perceived stress scores.

Results: A significant difference in perceived stress scores with a medium effect size was observed between injured and non-injured SAs [$t(156)=3.18, p=0.002, d=0.51$], with injured SAs (21.62 ± 7.19) demonstrating higher scores than non-injured SAs (18.17 ± 6.35).

Conclusions: As hypothesized, results showed that injured SAs exhibited higher perceived stress when compared to their counterparts during the time of the COVID-19 pandemic. These findings are similar to existing literature where injured SAs demonstrated higher stress scores than non-injured SAs during pre-pandemic times.

Key Words: anxiety, impaired, college sports

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Introduction

Perceived stress has been defined as the extent to which an individual appraises an event in their lives as stressful¹. Common perceived stressors for college students have included experiencing difficulties with academic-based stress as well as psychosocial distress such as socialization to college life and diminished feelings of overall well-being^{2,3}. Previous research has determined that collegiate student-athletes (SAs) face additional psychosocial, time management, and expectation-based stressors (e.g., missing classes for competitions and/or travel, maintaining a team grade point average, pressures to succeed in one's sport, etc.) due to demands and conflicts of balancing the dual roles of being a student and an athlete^{4,5}. Moreover, SAs sustaining a sport-related injury have further psychosocial stressors placing SAs at an increased risk of developing anxiety,

depression, substance use, and eating disorders while feelings of fear, frustration, amotivation, disconnection and isolation from teammates during rehabilitation have been reported⁶⁻¹⁰.

During the COVID-19 pandemic, SAs were faced with closings of their respective campuses and training facilities and seasons being cut short, moved to different seasons, or canceled altogether resulting in increased stress⁹⁻¹¹. In addition, injured SAs showed increased prevalence of anxiety and depression when compared to their non-injured counterparts during the pandemic¹². With few studies examining perceived stress of injured collegiate SAs during the height of the pandemic, the purpose of this study was to investigate if differences existed in perceived stress at the height of the pandemic between SAs who experienced an injury versus those that did not experience an injury during the COVID-19 pandemic. It was hypothesized that there would be a statistically significant difference in perceived stress scores between injured and non-injured SAs, with injured SAs demonstrating higher scores than non-injured SAs.

Scientific Methods

Participants

Overall, 158 NCAA Division II SAs at a single, private midwestern university were recruited from 12 athletic teams and partook in the current study ($n_{\text{injured}}=66$, $n_{\text{non-injured}}=92$). SAs were required to be a minimum of 18 years of age and must have been on an athletic team's roster at the time of data collection during the academic year 2021-2022. Once Institutional Review Board approval and stakeholder agreements were satisfied, a recruitment email was sent to SAs by the sports medicine director. Participants who volunteered to participate in the current study first read and signed an informed consent form contained within the first pages of the Google Forms and then completed the questionnaires during one time point. Note: At the time of data collection, the country was still considered to be in a global pandemic due to the COVID-19 virus per the Centers for Disease Control & Prevention¹¹.

Protocol

Participants completed demographics/historical items and the Perceived Stress Scale (PSS)¹ within the Google Forms questionnaire after the informed consent process was completed. Participants were asked if they had sustained an athletic injury in the past six months. The 10-item PSS measures the degree to which individuals believe their life has been unpredictable, uncontrollable, and overloaded during the previous month. Four out of 10 items of the PSS (i.e., items 4, 5, 7 and 8) are reversed scored (0=4 to 4=0) and then summed for one total perceived stress score¹. Higher scores indicate higher perceived stress. Previous analyses of the PSS established satisfactory psychometric evidence and has been validated for use in both adolescent and adult populations^{1,14-15}.

Statistical Analysis

With an alpha level of $p \leq 0.05$ set for statistical significance, a two-tailed independent samples *t*-test was performed to assess if a difference existed in perceived stress scores between injured SAs and non-injured SAs. All data were analyzed via SPSS version 27.0 (IBM Corp., Armonk, NY).

Results

158 SAs completed the PSS, which provided a 23% response rate of the SA population during the time of this investigation. Analyses revealed a statistically significant difference in perceived stress between injured and non-injured SAs, $t(156)=3.18$, $p=0.002$, with a medium effect size observed, $d=0.51$. See Table 1.

Table 1. Perceived Stress Scores Between Injured and Non-Injured Student-Athletes

	Injured SAs	Non-Injured SAs	<i>t</i> Score	Mean Difference
PSS Score	21.62 ± 7.19	18.17 ± 6.35	<i>t</i> 3.18 (156)	3.45

Data are presented as mean ± standard deviation; *t* score; mean difference.

Discussion

The current study's aim was to examine differences in perceived stress between injured and non-injured SAs during the COVID-19 pandemic. It was hypothesized that a significant difference in perceived stress scores would be seen between injured and non-injured SAs. Specifically, it was expected that injured SAs would demonstrate higher scores than non-injured SAs.

The data supported the hypothesis that expected a statistically significant difference to be observed between injured and non-injured SAs with injured SAs demonstrating higher perceived stress scores. This finding is similar to that of pre-pandemic studies found in the existing literature investigating injured SAs and stress-related factors⁷⁻⁸. It has been shown that SAs experiencing an injury have been associated with increased depression and anxiety as well as feelings of anger, low self-esteem, a lack of motivation, and feeling secluded from teammates and coaches due to the injury rehabilitation process⁶⁻¹².

Collegiate SAs alike experienced similar COVID-19-related challenges including frustrations with training and competition changes alongside shifts in academic instructional delivery and expectations⁹⁻¹². Particularly, the trying times due to the pandemic were found to have intensified injured SA levels of perceived stress creating more strain on mental health as interruptions in the rehabilitation process were experienced¹². It has been suggested that a lack of social support due to the isolating nature of the COVID-19 pandemic resulted in increased perceived stress for injured SAs navigating an unusual rehabilitation process¹². Interestingly, injured SAs have also reported that the COVID-19 lockdown allowed for more recovery time and less pressurized preparation for returning to their sport as well as a newfound appreciation for their sport¹². Suggested adaptive coping and self-regulation strategies that could be used by practitioners or coaches for injured SAs with high perceived stress include: 1) ensuring these SAs have individuals identified in their lives for social support, 2) using confidence building measures (i.e., imagery and self-talk strategies), and 3) guiding injured SAs in arousal regulation exercises in order to reduce cognitive and somatic-based anxiety which often accompanies becoming injured and coping with the rehabilitation and return to play process¹².

Limitations

Although the current study showed consistency with pre-pandemic findings in that injured SAs demonstrated higher perceived stress than their non-injured counterparts, this study is not without its limitations. The sample of SAs was taken from only one Division II NCAA institution situated in the Midwest which may not have shown adequate representation across the collegiate SA population or NCAA divisions. The demographics/historical items and PSS were distributed by the institution's sports medicine director which may have influenced how truthfully SAs answered questionnaire items due to a social desirability bias. Furthermore, the study did not ask SAs which cycle of their respective season they were in at the time they completed the questionnaires (pre-season, in-season, or off-season) as this may have influenced individual stress appraisals and how SAs answered items on the PSS.

Conclusions

Results demonstrated that a significant difference in perceived stress scores were found between injured and non-injured SAs during the COVID-19 pandemic with injured SAs exhibiting higher perceived stress scores. Whether within a pandemic or not, a closer eye should be kept on injured SAs and their mental health status as there are additional stressors present beyond the dual role of being an SA when injured and going through rehabilitation. Considerations for future research in this area should include an experimental design to capture potential changes over the course of SAs' seasons as well as be more inclusive of SAs from other institutions and NCAA divisions around the country.

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