

Examining Injury-Related Differences in Motivation in NCAA Division II Student-Athletes during COVID-19

Direct Original Research

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Abstract

Introduction: Few studies have explored motivation using the Self-Determination Theory in injured collegiate student-athletes (SAs). The purpose of this research was to assess differences in six motivation sources during the COVID-19 pandemic between SAs who experienced an injury versus those that did not. It was hypothesized that differences would be seen in intrinsic-based motivation between injured and non-injured SAs with non-injured SAs demonstrating higher intrinsic motivation.

Methods: NCAA Division II SAs (n=158) from 12 teams composed of injured (n=66) and non-injured (n=92) SAs were recruited to complete an online demographics/historical questionnaire and the 18-item Sport Motivation Scale II measuring six motivation sources at one time point: intrinsic, integrated, identified, introjected, external, and amotivation regulation/motivation. Independent samples t-tests were performed with an alpha level of $p \leq 0.05$ to examine differences for each motivation source.

Results: No significant differences were observed between injured and non-injured SAs among the six motivation sources, respectively ($p > 0.05$). Specifically, no intrinsic motivation differences were observed between the injured (15.89 ± 3.88) and non-injured SAs (16.22 ± 3.68 , $t(154) = -0.53$, $p = 0.60$).

Conclusions: Study findings suggested no difference between the SA groups indicating that the collegiate athletics professionals worked diligently and equally with injured and non-injured SA's motivation and care during the pandemic.

Key Words: self-determination, debilitated, college players

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Introduction

Research suggests that becoming injured in one's sport has been associated with increased depression, anxiety, and negative affect (e.g., anger) as well as detriments in self-esteem, motivation and a loss of bonding with teammates due to feelings of seclusion while in rehabilitation¹. Previous studies demonstrated that high self-determined/intrinsic-based motivation used by injured collegiate student-athletes (SAs) were found to be protective producing positive perceptions during rehabilitation and returning to competition whereas less self-determined/extrinsic-based motivation served as a risk factor for SAs where increased anxiety was seen^{1,2}. Psychological factors such as SA perception of control and emotions of the rehabilitation process and whether or not SAs received support from coaches, teammates and other



significant individuals have been found to be influential for motivation in injured SAs³. During the COVID-19 pandemic, SAs generally suffered a significant decrease in intrinsic motivation due to the elimination of competition and the peer support of teammates^{4,5}. Yet, current research indicates that SAs who relied on intrinsic-based motivation sources during the pandemic (e.g., goals for self-improvement in sport performance) indicated higher self-determination compared to those SAs who used more extrinsic-based motivation sources^{5,6}.

However, few studies have examined motivation in injured Division II SAs using the Self-Determination Theory (SDT) framework and its motivation continuum during the unique time of the pandemic. The SDT, a macro-theory of human motivation, consists of four sub-theories that work in conjunction with one another to explain phenomena and processes of motivation involving contexts, situations and environmental circumstances⁷. The SDT continuum focuses on autonomous versus controlled motivation, the mechanism of how individuals make shifts along this continuum, and a taxonomy of six motivation sources (i.e., intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation) that support the multi-dimensional nature of motivation⁷⁻⁹. Therefore, there is a need for a more comprehensive and empirically-based perspective of injured Division II SAs' motivation using the SDT for those professionals working within this population during COVID-19. The purpose of this research was to use the SDT continuum to examine differences in six motivation sources between Division II SAs who experienced an injury versus those that did not during the time of the COVID-19 pandemic. It was hypothesized that there would be statistically significant differences in motivation between injured and non-injured SAs, with non-injured SAs demonstrating higher intrinsic-based motivation scores than injured SAs.

Scientific Methods

Participants

NCAA Division II SAs ($n=158$; $n_{\text{injured}}=66$, $n_{\text{non-injured}}=92$) from a single, private midwestern university from 12 teams participated in the study. Study participation eligibility included that participants be SAs currently on an athletic team's roster during the academic year of data collection (2021-2022) and be a minimum of 18 years of age. An online Google Forms questionnaire was distributed via email to all eligible SAs ($n=667$) by the sports medicine director after Institutional Review Board approval and stakeholder agreements between the researchers and the athletic director were established. A total of 158 SAs (23% response rate) agreed to participate and signed the informed consent form contained within the first pages of the Google Forms. 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 & Prevention¹⁰.

Protocol

Once the informed consent form was finished, each participant completed the remainder of the Google Forms questionnaire consisting of demographics/historical items as well as the Sport Motivation Scale II (SMS II)¹¹. In order to determine injury status, it was specifically asked of participants if they had been diagnosed with an athletic-injury in the past six months or not. The SMS II consists of 18-items designed to measure the six sources of motivation: intrinsic (IR), integrated (INTR), identified (IDR), introjected (ITR), external (EXT), and amotivated (AMR) regulation. The SMS II is measured on a 7-point Likert-type scale (1 = no correspondence to 7 = corresponds exactly) with summed scores ranging from 3 to 18 for each source. Higher scores indicate the motivation source most employed during sport participation. Previous factor analysis of the psychometric properties of the SMS II scale, using a validation modeling technique, revealed that the SMS II model is statistically significant and that the fit of the model is very good (RMSEA = 0.07; RMSEA 90% CI = 0.05-0.08; CFI = 0.94; NFI = 0.90; TLI = 0.92)¹¹. In addition, a previous reliability analysis yielded satisfactory internal reliability scores ($\alpha \geq 0.70$) for each of the six sources using Cronbach alpha: IR ($\alpha = 0.88$), INTR ($\alpha = 0.80$), IDR ($\alpha = 0.82$), ITR ($\alpha = 0.70$), EXT ($\alpha = 0.74$) and AMR ($\alpha = 0.81$)¹¹.

Statistical Analysis

Two-tailed independent samples *t*-tests were performed with an alpha level of $p \leq 0.05$ set for statistical significance to examine if differences existed for IR, INTR, IDR, ITR, EXT and AMR between injured SAs and non-injured SAs. All data were analyzed via SPSS version 27.0 (IBM Corp., Armonk, NY).

Results

Analyses demonstrated that no statistically significant differences were seen among the six motivation sources between injured and non-injured SAs: IR ($t(154)=-.53$, $p=.60$), INTR ($t(154)=-.13$, $p=.90$), IDR ($t(154)=.91$, $p=.37$), ITR ($t(154)=.45$, $p=.65$), EXT ($t(154)=.84$, $p=.41$), and AMR ($t(154)=1.72$, $p=.09$). See Table 1.

**Table 1.** Sport Motivation Sources Between Injured and Non-Injured Student-Athletes

Source	Injured SAs	Non-Injured SAs	<i>t</i> Score	<i>p</i> value
IR	15.89 ± 3.88	16.22 ± 3.68	<i>t</i> -0.53 (156)	0.60
INTR	16.71 ± 3.64	16.78 ± 3.38	<i>t</i> -0.13 (156)	0.90
IDR	17.41 ± 3.33	16.90 ± 3.56	<i>t</i> 0.91 (156)	0.37
ITR	14.77 ± 3.98	14.47 ± 4.33	<i>t</i> 0.45 (156)	0.65
EXTR	8.71 ± 4.58	8.12 ± 4.27	<i>t</i> 0.84 (156)	0.41
AMR	7.85 ± 4.51	6.65 ± 4.19	<i>t</i> 1.72 (156)	0.09

Data are presented as mean ± standard deviation; *t* scores and *p* values for each motivation source.

Discussion

The aim of the current study was to examine differences in motivation between injured versus non-injured Division II SAs using the SDT continuum during the COVID-19 pandemic. It was hypothesized that statistically significant differences in motivation would be demonstrated between injured and non-injured SAs. Specifically, it was anticipated that higher intrinsic-based motivation scores would be seen in non-injured SAs. However, study results illustrated no significant mean differences between SA groups in any of the six motivational sources (IR, INTR, IDR, ITR, EXTR, AMR). For the present study, injured SAs demonstrated higher means than non-injured SAs in ITR and EXTR (sources low in self-determination) and AMR (amotivation) trending toward possible non-protective forms of sustainable motivation for injured SAs during the pandemic. Intrinsic-based/high self-determined motivation scores (IR, INTR and IDR) indicated a mix of non-significant differences between injured and non-injured SAs.

The current findings are in contrast to extant literature that suggests sustaining an injury in one's sport is related to losses in intrinsic-based motivation^{1,12-13}. It was previously shown that injured SAs receiving encouragement and support from coaches, teammates and sports medicine professionals alike during the rehabilitation process proved to be of importance in the prevention of intrinsic-based motivation loss³. The current study's findings point in the direction of athletic professionals at the Division II college level working diligently and equally with injured and non-injured SAs' motivation and care during the time of the pandemic as no significant mean differences were seen in motivation between the two groups. Additionally, a systematic review conducted during the COVID-19 pandemic revealed an increased prevalence of negative affect including anxiety, mood and motivation loss in the general population¹⁴. In particular, it was found that injured SAs displayed higher scores in less self-determined motivation as well as higher scores in anxiety during COVID-19 when compared to their counterparts¹⁴. Yet, those SAs as a whole who participated in a prescribed training/rehabilitation program during the lockdown were found to be less anxious and more self-determined¹⁵. In our study, over 96% of SAs as a whole reported participating in a training/rehabilitation programs during the pandemic which may have created a motivational safeguard for both SA groups since no significant mean differences were demonstrated.

Limitations

This study was not without its limitations. The study's measurement tools (i.e., demographics/historical items and SMS II) were self-report, posing a risk of social desirability bias (truthfulness of answering questionnaire items) as it was distributed directly from the sports medicine director. Moreover, the study did not factor in if the SAs were in their respective pre-season, in-season or off-season for their sport when completing the questionnaire as motivation during the competitive season may be influenced differently than when in the pre-season or off-season. In addition, the results, while generalizable, may only apply to the population of Division II SAs from this one institution but not apply to other collegiate SAs attending other institutions.

Conclusions

Results indicated that there were no differences in intrinsic or extrinsic-based motivation sources between injured and non-injured Division II SAs measured during the COVID-19 pandemic. Further research should seek research designs experimental in nature to examine motivation over multiple time points throughout an SA's season and expand the range of participants to include SAs from multiple NCAA Division II institutions as well as Division I and III SAs in order to produce more generalized results on behalf of collegiate sport. In addition, outcomes from this study may be useful in the case of another future public health pandemic and its effects on motivation and injury-related return to sport behavioral factors for collegiate SAs.



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