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The Relationship Between Stress Mindset and Burnout in College Athletes

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ABSTRACT

High levels of stress can result in college athletes experiencing symptoms of burnout and electing to terminate their sport participation. Research suggests there may be a relationship between athlete burnout and one's view of stress (Avery et al., 2022). The purpose of this study was to examine the relationship between stress mindset and burnout in college athletes, while controlling for gender, coping self-efficacy, and perceived stress. College athletes (N = 118) completed measures of stress mindset, athletic burnout, coping self-efficacy, and perceived stress via online survey software. Non-parametric partial correlations were conducted to determine relationships between variables while controlling for coping self-efficacy, perceived stress, and gender. The results revealed a significant negative correlation between stress mindset and total burnout score, and the burnout subscale of reduced sense of accomplishment. Further research could examine the effectiveness of a stress mindset intervention on reducing burnout symptoms in college athletes.

Keywords: Appraisal, Burnout, Coping, Self-Efficacy, Stress mindset

Researchers have found one's beliefs about stress or how one appraises stressors play a large role in the outcomes one experiences from stress (Crum et al., 2013; 2020). Stress often is believed to contribute to burnout in athletes (Gustaffson et al., 2017; Smith, 1986), which has been linked to performance decrements, the athlete's decision to terminate their sport career, and declines in psychological and physiological well-being (DeFreese & Smith, 2014; Madigan, 2021). Researchers have only recently begun to explore stress mindset, or one's beliefs about the nature of stress, in athletes (e.g., Mansell, 2021). However, one study exploring stress mindset reported that a high number of college athletes described their sport as the primary source of their stress (Avery et al., 2022), suggesting a possible connection between stress mindset and burnout. Therefore, developing a better understanding of associations between stress beliefs and burnout in college athletes is necessary.

Stress

Stress frequently is viewed as an unpleasant experience that can negatively impact one's health and wellbeing (Crum et al., 2011). However, all aspects of stress are not negative. Recent studies have established that stress can positively impact health and performance in various domains (Crum et al., 2011, 2013, 2017; Smith et al., 2020). Furthermore, Crum and colleagues reported that one's stress mindset has a significant impact on the outcomes one experiences from stress (Crum et al., 2013). For example, if someone believes stress can produce negative consequences (i.e., they hold a stress-is-debilitating mindset), they likely will experience more harmful consequences. Alternatively, if someone believes stress can produce positive consequences (i.e., they hold a stress-is-enhancing mindset) they likely will experience a positive outcome (Crum et al., 2013, 2017).

This idea that stress can be beneficial is not new. Specifically, in Selye's (1950) research on stress, he perceived stress to be an essential biological response, but one that could be detrimental if experienced for a lengthy period of time. Selye (1983) then expanded his ideas on stress to incorporate the concepts of distress, eustress, and appraisal. More specifically, he postulated that the experience of stress could produce either negative (distress) or positive (eustress) consequences, contingent on how one interpreted the physiological experience of stress. Lazarus and Folkman (1984) then extended the concept of appraisal in their transactional theory of stress and coping. In this theory, stress is perceived to be a complex interaction between a person and their environment over time. The outcomes one experiences from stress are determined by their appraisal or interpretation of both the situation and their resources to cope with the situation. For example, appraising a stressor as a threat and establishing that one does not have the resources to manage the stressor can result in the experience of distress. Alternatively, appraising a stressor as merely a challenge and concluding that one does have the necessary resources to cope with the stressor can result in the experience of eustress.

Stress Mindset

Researchers have found that stress mindset, which is different from merely appraising a specific stressor in that stress mindset refers to one's beliefs about the nature of stress, can influence one's perception of a stressor. Park and colleagues (2018) reported that middle school students who held a stress-is-enhancing mindset were less likely to feel stress when confronted with adversity. More recently, the stress optimization model was established by Crum and colleagues (2020) to highlight the importance of both stress mindset and stress reappraisal in influencing the use of coping strategies and resulting outcomes. The stress optimization model was developed from the findings of stress mindset interventions, stress reappraisal interventions, and the extended process model of emotion regulation. Specifically, one's mindset regarding stress impacts one's valuation system of stress as either 'good' or 'bad.' Crum et al. (2020) propose that this theoretical framework can guide positive interventions by focusing on aiding individuals to select and implement stress regulation methods aimed to achieve their goals and values.

One's perceptions of stress can influence the type of stress experienced, as well as the outcome of the stressful situation. Therefore, it is necessary to gain a better understanding of stress mindset by examining distinct populations and cultures. For example, the pressures associated with being a college athlete can be perceived as stressful for some but serve as a buffer to negative aspects of stress for others (Kimball & Freysinger, 2003). Ultimately, developing a more thorough comprehension of college athletes' stress mindset could positively impact sports performance. Recently, a study by Avery et al. (2022) explored the stress mindset in college athletes and non-athletes. The researchers did not find a significant difference between college athletes and non-athletes on stress mindset. However, they did find that both groups reported holding a more stress-is-debilitating mindset. Additionally, 23% of the athlete participants in the study reported their sport as their primary source of stress, suggesting athletic burnout could be contributing to their stress-is-debilitating mindset (Avery et al., 2022). Therefore, it appears there could be a possible link between burnout and stress mindset in college athletes.

Burnout

High levels of stress sometimes result in college athletes experiencing symptoms of burnout, and electing to retire or terminate their sport participation before their eligibility runs out. It is estimated that fewer than 7% of high school athletes have the opportunity to continue playing their sport in college (NCAA, 2020), yet 15% of college athletes choose to end their athletic participation before reaching their second or third year in college (Culp, 2019). Researchers have identified four causes athletes terminate or retire from their sport. These causes include injury, deselection, age, and free choice (Alfermann & Stambulova, 2007; Ogilvie & Taylor, 1993). Burnout often is reported as a reason why athletes voluntarily elect to terminate their athletic participation (Larson et al., 2019).

Burnout was first defined by Freudemberger (1974) and later by Maslach and Leiter (1976) as a combination of fatigue, cynicism, and a reduced commitment among professionals. Burnout in sport typically is considered to consist of three dimensions, or categories of symptoms: a reduced sense of accomplishment, emotional and/or physical exhaustion, and sport devaluation (Madigan, 2021; Radeke & Smith, 2001). Reduced sense of accomplishment is characterized by doubt or negative beliefs regarding the athlete's athletic ability and/or achievement. Emotional and physical exhaustion is considered to be feeling mentally or physically drained, due to a depletion of mental and physical resources. Finally, sport devaluation is described as a lack of interest or motivation regarding sport participation or performance.

While there are multiple theoretical perspectives on burnout, only one emphasizes the role stress plays in the development of burnout. According to Smith's (1986) cognitive-affective burnout model, burnout occurs when an athlete appraises the demands of a situation to exceed their resources to cope with the situation. Thus, burnout develops when one does not possess the coping skills to manage perceived chronic stress. According to the stress optimization model, it is possible that stress mindset could be linked to burnout in that individuals holding a stress-is-debilitating mindset may be more likely to appraise the demands of the situation as negative or threatening and may be less likely to hold effective coping skills. Therefore, holding a stress-is-debilitating mindset could put an athlete at a higher risk of developing burnout. Burnout can lead to performance decrements, but also can impact psychological and physiological well-being (DeFreese & Smith, 2014; Madigan, 2021). For example, burnout might lead to athletes experiencing illness, injury, fatigue, self-doubt, mood disturbances, among other consequences (Dubuc-Charbonneau & Durand-Bush, 2015).

Despite the negative consequences associated with burnout, interventions do exist to minimize symptoms and consequences of burnout, however, very few studies have used burnout interventions with athletes. In one such study, Dubuc-Charbonneau and Durand-Bush (2015) implemented a self-regulation intervention that addressed such topics as perceived demands, resources, responses, coping strategies, and performance outcomes during 7–9 biweekly sessions. They found the intervention reduced self-reported burnout symptoms in a small number of college athletes. Research also has found that season-long interventions can improve athletes' coping skills (e.g., Reeves et al., 2011), however, more feasible solutions are needed to prevent athletes from experiencing burnout and from dropping out of sport. Further, research on interventions to reduce burnout in other fields suggests cognitive-based interventions can be beneficial and should be explored in athletes as well (Gustafsson, DeFreese et al., 2017).

Current Considerations

Before further interventions are employed to reduce burnout in college athletes, it is first necessary to develop a better understanding of the associations between stress mindset and burnout in college athletes. A recent study found that perceived stress and affect mediated the relationship between resilience, burnout, and perceived performance (Moen et al., 2019). Furthermore, coping, and similarly one's belief in their ability to effectively use coping strategies (e.g., coping self-efficacy), also have been found to impact burnout (Goussinsky, 2020; Laschinger et al., 2015; Raedeke & Smith, 2004). Therefore, it also is necessary to control for the influence of both perceived stress and coping self-efficacy when examining the relationship between stress mindset and burnout. As such, we sought to answer the following question:

- 1) What is the relationship between stress mindset and burnout in college athletes, while controlling for coping self-efficacy and perceived stress?

We hypothesized that a negative relationship would be found between stress mindset and burnout, in that college athletes who hold a stress-is-debilitating mindset also would report higher levels of perceived burnout.

Method

Procedures

Following approval from the institutional review board, participants were recruited using convenience sampling. The study information and corresponding link to the survey were shared via social media posts, emails, and fliers posted around a southern U.S. university campus. Participants followed the link to access the study via Qualtrics, an online survey tool. Data were collected between October and December 2020, which, for many students, was their first full semester in college impacted by the COVID-19 pandemic. However, it should be noted that all our participants reported their sports were practicing face-to-face.

Participants

An *a priori* power analysis was performed using G*Power 3.1 to determine the approximate sample size needed for the study. Given the correlations between stress mindset and other variables such as well-being or job turnover (i.e., *r* between .25 and .27) identified from previous stress mindset studies (e.g., Keech et al., 2018; Kim et al., 2020) and desired power of 80%, it was determined a sample size of 113 or more participants should be obtained. A total of 167 individuals provided consent to participate in the study; however, 49 individuals did not complete the survey beyond the acknowledgement of consent, or the Stress Mindset Measure, and were eliminated from further data analyses. Therefore, the total sample size was 118 current college athletes ($n_{\text{male}} = 39$, $n_{\text{female}} = 79$) who participated in this study. Participants ranged in age from 18 to 22 ($M = 20.28$, $SD = 1.01$) and represented NCAA DI ($n = 8$), DII ($n = 85$), DIII ($n = 12$), and NAIA ($n = 13$) institutions. Additional demographic information is reported in Table 1.

Table 1
Participant demographic data

Variable	<i>n</i>	Variable	<i>n</i>		
Year in school	Freshman	Ethnicity	Asian	4	
	Sophomore		Black	19	
	Junior		Caucasian	63	
	Senior		Hispanic	24	
College major	Accounting	2	Sport	Native American	2
	Agriculture	4		Bi/multiracial	6
	Biology	4		Baseball	6
	Business	11		Basketball	22
	Communications	4		Cross country	2
	Criminology	2		Football	8
	Education	3		Golf	11
	Engineering	12		Soccer	21
	Kinesiology/exercise science	40		Softball	15
	Nursing	2		Tennis	4
	Nutrition	2		Track	5
	Psychology	24		Volleyball	16
	Sport management	4		Not reported	4
	Wildlife science	2			

Instruments

Participants provided demographic information and completed the Stress Mindset Measure, Perceived Stress Scale-10, the Coping Self-Efficacy Scale, and Athlete Burnout Questionnaire. Demographic information collected included age, gender, ethnicity, year in school, major, as well as sport information, such as type of sport or division.

The Stress Mindset Measure (SMM; Crum et al., 2013) is an 8-item measure of an individual's stress mindset. The SMM is completed using a five-point Likert-type scale from zero (strongly disagree) to four (strongly agree). A sample item from the SMM is, "Experiencing stress facilitates my learning and growth." Half of the items are positively worded; the other half are negatively worded and then reverse-scored. Therefore, higher scores represent a more positive, or stress-is-enhancing mindset, whereas lower scores represent a more negative, or stress-is-debilitating mindset. The Cronbach's alpha for the current study was 0.90. The SMM also includes three preliminary items in which participants report the amount of stress they are experiencing, the primary source of stress in their lives, and how stressful they perceive that source of stress to be. The source of stress is an open-ended response item, while both the amount of stress and degree of stressfulness are completed using seven-point Likert-type scales from one, representing none or not stressful at all, to seven, representing an extreme amount of stress.

The 10-item Perceived Stress Scale (PSS-10; Cohen et al., 1983; Cohen & Williamson, 1988) is a measure of the frequency of which one believes the situations in their life have been stressful during the previous month. Participants completed the PSS-10 using a six-point Likert-type scale from zero (never) to five (very often). A sample item from the PSS-10 is, "In the last month, how often have you been upset because of something that happened unexpectedly?" Four items on the PSS-10 are positively worded and are then reverse-scored, so a higher total score on the PSS-10 indicates a higher perceived level of stress. The Cronbach's alpha for the PSS-10 in this current study was 0.89.

The Coping Self-Efficacy Scale (CSE; Chesney et al., 2006) is a 13-item measure of an individual's degree of self-efficacy or confidence to engage in various coping behaviors when facing challenging situations. The CSE is completed using an 11-point scale from zero to 10 with anchors of cannot do at all (0), moderately certain can do (5), and certain can do (10). The CSE has three subscales, using problem-focused coping (6 items), stopping unpleasant emotions and thoughts (4 items), and getting support from friends and family (3 items). In this current study, the Cronbach's alphas for each subscale were acceptable (α coefficients of .91 for problem-focused coping, .95 for stopping unpleasant emotions, and .85 for getting support from friends and family).

The Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001; Raedeke & Smith, 2009) is a 15-item measure of athlete burnout. Participants indicate the frequency of which they have had thoughts or feelings regarding their sport on a five-point Likert-type scale ranging from almost never (1) to almost always (5). The three subscales include emotional/physical exhaustion (e.g., "I feel so tired from my training that I have trouble finding energy to do other things"), a reduced sense of accomplishment (e.g., "I am not performing up to my ability in my sport"), and sport devaluation (e.g., "I don't care as much about my sport performance as I used to"). Two statements are positively worded, and are therefore reversed scored, so that overall higher scores represent an increase in burnout symptoms. The Cronbach's alphas for the ABQ total (.96) and for each ABQ subscale in this study were also acceptable (α coefficients of .88 for reduced accomplishment, .94 for exhaustion, and .95 for devaluation).

Data Analysis

Following Tabachnick and Fidell's (1996) recommendations, data were first screened for normality, outliers, and patterns of missing data. Reliability analyses were performed on all the measures. Descriptive data were calculated for all variables using SPSS v. 26. Bivariate correlations and independent samples *t*-tests were conducted between demographic variables (gender, ethnicity, year in school, sport type, and NCAA division), SMM, PSS-10, CSE, and ABQ to determine the potential influence of demographic variables on the key variables. For example, previous studies have found gender differences in burnout (Dubuc-Charbonneau et al., 2014; Heidari, 2013; Judge et al., 2012; Mouelhi-Guizani et al., 2022). Four non-parametric partial

correlations were run to determine the unique relationship between stress mindset, total burnout score, and the burnout subscales, while controlling for other variables. Non-parametric partial correlations were selected given that partial correlation reveals underlying relationships between variables of interest by subtracting the variance due to other variables. In other words, partial correlations aid in examining the specific relationship between the variables of interest, while accounting for confounding factors. Further, partial correlation presents a clearer depiction of the relationship between variables of interest than regression, especially considering the data in the present study was non-parametric and we were not interested in examining the directionality of the relationship between stress mindset and burnout at this time. Effect sizes for t-tests are reported as Hedge's *g* given the unequal sample sizes, where 0.2 is considered a small effect, 0.5 a medium effect, and 0.8 a large effect.

Results

Descriptive Data

Primary stressors that participants identified from the SMM open-ended response item included COVID-19, uncertainty, school, their sport, their own or family's health, and financial concerns.

Preliminary Analyses

Data were first screened for normality, outliers, and patterns of missing data. Skewness and kurtosis values for the SMM, PSS-10, CSE subscales, ABQ total, and ABQ subscales revealed the data were normally distributed (i.e., all values were between + 1.0). One hundred and sixty-seven participants clicked the button to consent to participate in the study, however, 49 individuals did not complete the survey past the SMM and were therefore removed from further analysis, resulting in a total sample size of 118. Of the remaining 118 participants, there was no missing data on questionnaire items. Four participants did not report the specific sport that they participated in, but were kept in the sample as there were no additional missing responses. Independent sample *t*-tests were conducted to explore differences in demographic data (gender, ethnicity, type of institution) and stress mindset scores between those who did and did not complete the questionnaires. There were no significant differences between individuals who did and did not complete testing on any variable. Data were screened for outliers using *z*-scores, utilizing ± 3.0 as a cut-off. No univariate or multivariate outliers were identified in the sample. The means and standard deviations for stress mindset, perceived stress, coping self-efficacy, and burnout are reported in Table 2.

Table 2

Means and standard deviations

Variable	Mean (SD)
ABQ Total	2.69 (1.02)
ABQ: Reduced Sense of Accomplishment	2.58 (1.01)
ABQ: Exhaustion	3.18 (1.18)
ABQ: Sport Devaluation	2.32 (1.20)
SMM	1.67 (0.85)
PSS	2.35 (0.63)
CSE: Problem-Focused Coping	5.82 (1.72)
CSE: Stopping Unpleasant Emotions	4.41 (1.99)
CSE: Support	5.10 (2.16)

Note. ABQ = Athlete Burnout Questionnaire; SMM = Stress Mindset Measure; PSS = Perceived Stress Scale; CSE = Coping Self-Efficacy Scale

Independent samples *t*-tests were conducted between demographic variables, SMM, CSE, and ABQ using the Bonferroni correction to determine the potential influence of demographic variables on the key variables. Independent samples *t*-tests revealed significant differences on the ABQ subscale of reduced sense of accomplishment ($t(116) = 3.16, p = .002, g = 0.62$) between males ($M = 2.98, SD = 1.14$) and females ($M = 2.38, SD = 0.87$). Significant differences were also found on the ABQ subscale of exhaustion ($t(116) = 3.53, p = .001, g = 0.70$) between males ($M = 3.70, SD = 1.06$) and females ($M = 2.92, SD = 1.15$). Significant differences were also found on the third ABQ subscale of sport devaluation ($t(116) = 3.10, p = .002, g = 0.61$) between males ($M = 2.79, SD = 1.35$) and females ($M = 2.09, SD = 1.05$). Finally, significant differences were found on the ABQ total ($t(116) = 3.66, p < .001, g = 0.71$) between males ($M = 3.16, SD = 1.06$) and females ($M = 2.47, SD = 0.92$). No other demographic variables were found to be significant. Given these findings, we controlled for gender when performing the non-parametric correlation as well.

Partial Correlations

Non-parametric partial correlations were conducted to determine the relationship between stress mindset, total burnout score, and the burnout subscales, while controlling for coping self-efficacy, perceived stress, and gender. Bivariate correlations between variables are reported in Table 3. The analyses revealed a significant negative correlation between stress mindset and total burnout score, while controlling for gender, perceived stress, and coping self-efficacy ($r(111) = -.284, p = .002$). Results of the zero order correlation revealed a significant negative correlation between stress mindset and total burnout score ($r(118) = -.377, p < .001$), suggesting that controlling for gender, perceived stress, and coping self-efficacy only had a small impact on the strength of the relationship between the two variables. A significant negative correlation was found between stress mindset and reduced sense of accomplishment, while controlling for gender, perceived stress, and coping self-efficacy ($r(111) = -.369, p < .001$). Similarly results of the zero order correlation revealed a significant negative correlation between stress mindset and reduced sense of accomplishment ($r(118) = -.426, p < .001$), suggesting that controlling for gender, perceived stress, and coping self-efficacy only had a small impact on the strength of the relationship between the two variables. However, no correlation was found between stress mindset and exhaustion when controlling for gender, perceived stress, and coping self-efficacy ($r(111) = -.114, p = .230$). Finally, no correlation was found between stress mindset and sport devaluation when controlling for gender, perceived stress, and coping self-efficacy ($r(111) = -.175, p = .064$).

Table 3
Correlations

Variable	1	2	3	4	5	6	7	8	9
1. ABQ Total	1	** .89	** .82	** .91	** -.38	** .47	** -.48	** -.27	** -.29
2. ABQ: Reduced Sense of Accomplishment		1	** .56	** .79	** -.43	** .46	** -.43	* -.23	** -.35
3. ABQ: Exhaustion			1	** .72	* -.27	** .48	** -.57	** -.34	* -.25
4. ABQ: Sport Devaluation				1	* -.25	** .33	** -.44	* -.21	* -.22
5. SMM					1	** -.40	.08	** .35	.16
6. PSS						1	** -.36	** -.35	** -.42
7. CSE: Problem-Focused Coping							1	* .26	** .36
8. CSE: Stopping Unpleasant Emotions								1	** .50
9. CSE: Support									1

Note. ABQ = Athlete Burnout Questionnaire; SMM = Stress Mindset Measure; PSS = Perceived Stress Scale; CSE = Coping Self-Efficacy Scale

* $p < .05$. ** $p < .001$

Discussion

The purpose of this study was to examine the relationship between stress mindset and burnout in college athletes, while controlling for coping self-efficacy, perceived stress, and gender. We hypothesized that a negative relationship would be found between stress mindset and burnout, in that college athletes who hold a more stress-is-debilitating mindset also would report experiencing increased burnout symptoms. The results revealed a significant negative correlation between stress mindset and total burnout score, as well as reduced sense of accomplishment, while controlling for gender, perceived stress, and coping self-efficacy. Thus, having a more positive (or more stress-is-enhancing) mindset was related to lower levels of perceived burnout, as measured by the total burnout score and also the reduced sense of accomplishment subscale. This finding partially can be supported by Gustafsson, Sagar, and colleagues' (2017) study in which they found that an athlete's fear of experiencing shame and embarrassment affected perceived stress and reduced sense of accomplishment, but not the other two dimensions of burnout. They suggested that athletes may push themselves to the point of burnout in order to avoid shame and embarrassment.

Furthermore, research on resilience in sport has found athletes with a psychologically protective mindset are better at avoiding negative outcomes from stress, including burnout (Sarkar, 2017). Studies also have found that cognitive appraisal plays a role in athlete burnout (e.g., Gomes et al., 2017). More specifically, the stress optimization model (Crum et al., 2020) highlights the importance of considering both stress mindset and appraisals in determining coping strategies utilized and outcomes experienced from stress. Therefore, a college athlete's stress mindset may affect how they appraise stressors stemming from their sport and their coping strategies selected, which could impact the extent to which they experience symptoms of burnout.

Smith's (1986) cognitive-affective burnout model suggests that stress contributes to burnout. However, it also is possible that college athletes who are burnt out already are experiencing the debilitating effects of stress, which may result in the college athletes adopting a stress-is-debilitating mindset. For example, research has found that experiencing burnout can lead to negative physiological and psychological well-being, including increased illness or injury, fatigue, and mood disturbances among others (DeFreese & Smith, 2014; Dubuc-Charbonneau & Durand-Bush, 2015; Madigan, 2021). Thus, college athletes who are experiencing burnout and have already experienced negative outcomes of stress may adopt a more stress-is-debilitating mindset as a result.

Noteworthy, college athletes in this sample reported experiencing burnout symptoms at a higher degree than previous studies have found (e.g., Cresswell & Eklund, 2005; Gustafsson et al., 2011). Specifically, the college athletes in the present study reported to be much higher on the emotional and physical exhaustion subscale ($M = 3.18$) compared to previous research (e.g., $M_{\text{range}} = 2.36 - 2.43$; Cresswell & Eklund, 2005; $M = 2.3$; Gustafsson et al., 2011). However, it should be noted that the data in this study was collected during late fall 2020, while the COVID-19 pandemic was still rampant. Increased amounts of stress for college students were reported following the start of the pandemic in 2020 (e.g., ActiveMinds, 2020). Furthermore, participants in this study reported COVID-19 as one of the most common stressors they were facing. Therefore, it is possible the higher levels of perceived burnout reported in the present study may be influenced by the pandemic.

Additionally, the participants in the current study who identified as male scored higher on the total burnout score, as well as all three subscales, when compared with participants who identified as female. Contrastingly, Heidari (2013) reported female athletes scored significantly higher on the total score, as well as all three dimensions of the ABQ. Additional research has consistently reported when gender differences were examined, that women scored higher on the ABQ, indicating that women were experiencing higher levels of burnout (Dubuc-Charbonneau et al., 2014; Judge et al., 2012; Mouelhi-Guizani et al., 2022). The general consensus among researchers has been that women are more susceptible to burnout than their male athlete counterparts. However, the results of the current study require further consideration of gender differences in athlete burnout.

Furthermore, the college athletes in this study also reported holding more negative stress mindset scores (i.e., participants had a stress-is-debilitating mindset; $M = 1.67$, $SD = 0.85$). This study also found a relationship between a stress-is-debilitating mindset and impactful outcomes,

specifically burnout. Given the positive results previous stress mindset intervention studies have found (e.g., Crum et al., 2013), college athletes likely would benefit from such an intervention. Additionally, researchers have more recently found that a variety of intervention strategies can create a buffering effect on pandemic-related burnout (Shao et al., 2021). More specifically, cognitive reappraisals, alongside other intervention strategies such as mindfulness or self-kindness, can positively affect this burnout, especially emotional exhaustion (Shao et al., 2021). Recent calls have even gone out to consider employing stress mindset and reappraisal interventions to assist individuals in managing stress stemming from the pandemic (Hagger et al., 2020). Thus, researchers may consider exploring a stress mindset intervention on college athletes as a means to reduce burnout symptoms. However, as the present study only found relationships between stress mindset and reduced sense of accomplishment and stress mindset and total burnout score, future research may be needed to better understand these relationships before testing interventions.

From an applied perspective, the findings from this study can be useful for those working with college athletes; namely, with college athletes reporting a more stress-is-debilitating mindset. Practitioners could educate college athletes on how stress can produce beneficial outcomes, including enhancing athletic performance, as a means to shift them toward a more stress-is-enhancing mindset. Moreover, given the potential link between stress mindset and burnout, working to change a college athlete's stress mindset may also aid in reducing level of perceived burnout, which ultimately may help prevent a college athlete from dropping out of sport due to burnout. Lastly, as coping self-efficacy correlates with burnout, strengthening college athletes' belief in their ability to effectively use coping strategies may also aid in reducing burnout in this population. However, the directionality of the stress mindset and burnout relationship has not yet been established, therefore burnout could be contributing to stress mindset rather than the other way around. Practitioners may also aim to teach college athletes coping resources as a means to prevent or reduce burnout and thus perhaps facilitate a more stress-is-enhancing mindset. Athletic departments could consider increasing the amount of sport psychology services (e.g., employing additional Certified Mental Performance Consultants) provided for college athletes to address stress mindset and burnout, as well.

Limitations

The limitations of this study include the mode of data collection, the cross-sectional nature of the data, and the generalizability of the results. The data were collected via self-report, therefore, it is possible participants may not have responded accurately, perhaps due to social desirability (Zerbe & Paulhus, 1987). Furthermore, COVID-19 social distancing protocols required our data collection to be moved from in-person to an online format, which may also have resulted in ineligible participants completing the survey. Further, the pandemic may also have influenced the college athletes' perceptions of burnout, given that increased stress levels have been reported in all college students since the beginning of the COVID-19 pandemic (ActiveMinds, 2020). However, while our participants reported their sports had returned to face-to-face training, it is possible the total amount of weekly training hours may have been higher or lower than pre-pandemic. Additionally, the data were cross-sectional, which therefore does not imply causation. Finally, as the participants in this sample predominantly identified as Caucasian (53%) and attended NCAA Division II programs (72%), the generalizability of our findings may be limited.

Future research should also continue to explore the nature of the relationship between stress mindset and burnout. In the present study, stress mindset was linked to both total burnout score and the reduced sense of accomplishment dimension, but not to exhaustion or sport devaluation. Some researchers have argued that emotional and physical exhaustion are core features of burnout (e.g., Gustafsson et al., 2011; Raedeke, 1997). Thus, no significant correlation between stress mindset and exhaustion could suggest there may not be a relationship between stress mindset and burnout, but rather, stress mindset and other variables linked to a reduced sense of accomplishment, such as fear of failure or perfectionism. Therefore, future research should aim to address the limitations of the present study, including collecting longitudinal data throughout a season, exploring these constructs in a more diverse sample, reexamining these constructs outside of a global pandemic, further examining stress mindset alongside other variables, such as fear of

failure or perfectionism, or qualitatively exploring the nature of stress mindset in college athletes. Finally, if further studies also establish a relationship between stress mindset and burnout, examining the effect of a stress mindset intervention on burnout symptoms would be another avenue to explore given that most burnout interventions for athletes are costly and time intensive.

Conclusion

The present research examined the relationship between stress mindset and burnout in college athletes, while controlling for gender, coping self-efficacy and perceived stress. The results revealed a significant negative correlation between stress mindset and total burnout score, as well as the burnout subscale of reduced sense of accomplishment, while controlling for gender, perceived stress, and coping self-efficacy. Thus, having a more negative (or more stress-is-debilitating) mindset was related to higher levels of perceived burnout, as measured by the total burnout score and also the reduced sense of accomplishment subscale.

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