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College Athlete Resilience: Achieving Mental Wellbeing During a Pandemic

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The long-term negative impact of the COVID-19 pandemic on mental health outcomes among college athletes has been well-established. However, mental wellbeing in this population remains understudied. Guided by the conceptual framework of sport resilience, this study examined the impact of COVID-19 on mental wellbeing among NCAA Division I college athletes and, more specifically, the moderation effect of resilience on the relationship between COVID-19 and mental wellbeing. Among college athletics, resilience is believed to not only mitigate mental health concerns but may also promote mental wellbeing. Findings revealed a significant and negative correlation between COVID-19 and mental wellbeing, as well as a positive relationship between resilience and mental wellbeing. Further, resilience was found to significantly moderate the relationship between the impact of COVID-19 and mental wellbeing. Regardless of the impact level of COVID-19, college athletes with high levels of resilience consistently reported greater mental wellbeing than those with medium or low levels of resilience. Although prior research has clearly demonstrated the negative impact of the pandemic on mental health, findings from the current study illustrate the positive influence of resilience. Given the likelihood of future public health pandemics (e.g., avian influenza, measles) and ongoing changes to federal food safety policies—we believe that this study highlights the importance of resilience in navigating challenging circumstances.

Keywords: student-athlete, mental health, holistic health

With nearly 500,000 youth and young adults competing in National Collegiate Athletic Association (NCAA) collegiate athletics, there is growing recognition of the unique mental health concerns, challenges, and needs among college athletes (Brown, 2014; Morris et al., 2020). In fact, college athletes—in comparison to their nonathlete peers—are known to be at greater risk for anxiety, depression, and

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other mental health diagnoses (Putukian, 2016; Ryan et al., 2018). This greater susceptibility is due, in part, to unique pressures and stressors that confront athletes (Moore & Gummelt, 2019). Athlete-specific risk factors include physical and psychological demands of competition, rigorous training and travel schedules, time requirements for both athletics and academics, as well as social and media pressure (Cosh & Tully, 2013; Martin et al., 2010). The culmination of such athlete-specific risk factors, in combination with mental health stigma, has contributed to, among other outcomes, a rise in deaths by suicide among college athletes (Bock, 2024). Given this reality, public attention, often through athlete advocacy, has begun to highlight the importance of adequate and accessible mental health services. Indeed, professional and college athletes—such as Michael Phelps (Jackson et al., 2022) and DJ Carlton (Cassilo & Kluch, 2023)—have utilized their social platforms to advocate for mental health awareness, literacy, and services.

Even in the years that followed, the COVID-19 pandemic has continued to disrupt and impact the lives of college athletes (NCAA, 2023). For instance, during the first competitive season following national lockdowns, college athletes reported that COVID-19 not only impacted their mental and physical health, but pandemic experiences were found to be significantly associated with continued psychological distress (Newman et al., 2023). Self-published reports by the NCAA (2022, 2023) further suggest that rates of mental health concerns (e.g., mental exhaustion) have seen little improvement since the height of the pandemic, with some forms of psychological distress (e.g., feeling overwhelmed) having remained 1.5 to 2 times higher than pre-pandemic levels (NCAA, 2022, 2023). Less examined among college athletes, however, is the strength-based construct of positive health outcomes. Given the release of the NCAA Sport Science Institute's (2024) consensus document that outlined mental health best practices, the first of which is *creating healthy environments that support mental health and promote wellbeing*, attention must also be afforded to positive mental health and wellbeing.

Consistently associated with mental wellbeing (Schultze-Lutter et al., 2016), resilience has recently been characterized as "the outcome of wellbeing maintenance despite threats to that wellbeing" (Waugh & Sali, 2023, p. 1). In this sense, resilience is conceptualized as the innate ability to withstand, adapt, and bounce back from experiencing adversity. This understanding of resilience emphasizes its ability concerning both enduring adversity and restoring mental wellbeing. Within collegiate athletics, research has provided initial support for the relationship between resilience and mental health-related constructs. Drew and Matthews (2019), for instance, demonstrated that college athletes with relatively higher resilience scores were associated with lower levels of symptoms related to depression and/or anxiety. Related specifically to college athlete mental wellbeing, several intervention studies have been conducted and yielded promising results. For example, Kuchar et al. (2023) examined the impact of the Resilience and Enhancement in Sport, Exercise, & Training (RESET) program and found college athletes not only learned to respond to setbacks appropriately, but these athletes also experienced reduced levels of depression, anxiety, and stress. There is, however, a dearth of research examining the

effect of resilience on mental wellbeing among college athletes. Thus, the purpose of the current study is to examine the impact of COVID-19 on mental wellbeing and, in turn, the moderation effect of resilience.

Literature Review

COVID-19 and College Athlete Mental Health

Since its global onset, the COVID-19 pandemic of 2020 has been recognized as a public health emergency and a major traumatic event for many. Experiencing a life-altering event not only impacts the immediate livelihood of an individual, but such an event can continue to have a long-term influence on one's life (Hancheva, 2021). For instance, traumatic events have the capability to affect not only economic welfare but also the safety, physical health, and mental health of individuals and entire communities (Morganstein & Ursano, 2020). In fact, experiencing a traumatic event, such as COVID-19, has been shown to alter the brain structure and functioning in young adults (Choi et al., 2019; Park et al., 2020). In turn, research has further demonstrated that traumatic experiences can lead to specific mental health diagnoses, such as generalized anxiety disorder, major depressive disorder, and post-traumatic stress disorder (Cavicchioli et al., 2021; Cénat et al., 2021).

The effect of COVID-19 may have been uniquely disruptive for college athletes who were confronted with facility closures, competition cancellations, training modifications, travel restrictions. As a result, college athletes were left feeling uncertain about their future, which led to increased feelings of anger and depression (Ahmad et al., 2024; Hussain et al., 2023). Further, stay-at-home mandates forced college athletes to lose their network of social support, which further adversely affected their mental health (Graupensperger et al., 2020). The sudden loss of sport and, in turn, the abandonment of a major component of their personal identity, was found to be emblematic of the grief experienced when losing a loved one (Economou et al., 2021; Knowles et al., 2021). Even when athletic competitions resumed, college athletes indicated that their social life and mental health were most continuously negatively impacted by COVID-19 (Newman et al., 2023).

Although the height of the pandemic may have passed, there remains worry regarding the continued and long-term effects on the mental health of college athletes. In fact, some scholars (e.g., Economou et al., 2021) have advocated for future caution, as college athletes may experience a delayed onset of mental health challenges because of the pandemic. Such a continuous negative effect is particularly concerning, given that one in seven college athletes has reported a lifetime prevalence of at least one mental health diagnosis (Sarac et al., 2018). However, as research continues to provide an understanding of the impact of COVID-19 on mental health, helping to better prepare for potential future global adversarial events, there is also a need to progress from a traditional deficit-based medical model to embrace a strengths-based approach to positive mental health. In this way, rather than solely examining outcomes related to depression, anxiety, and stress (e.g., Newman et al., 2023), research should more thoroughly examine outcomes and mechanisms of positive mental health.

Mental Wellbeing and Resilience

As a construct, mental wellbeing is often culturally dependent and can be traced back to ancient Greek society (Jarden & Roache, 2023). Ruggeri et al. (2020), however, underscored the multidimensional and intersectional nature of mental wellbeing and proposed the construct encompasses

> the combination of feeling good and functioning well; the experience of positive emotions such as happiness and contentment, as well as the development of one's potential; having some control over one's life; having a sense of purpose; and experiencing positive relationships. (p. 1)

More simply, mental wellbeing is regarded as a sustainable condition that enables an individual, population, and/or community to develop and thrive. When mental health is conceptualized as a continuum, mental wellbeing and mental illness are positioned at opposite ends as distinct yet interconnected dimensions (Keyes, 2002). In this two-continua model, positive mental health is recognized as a complete state of mental wellbeing, whereas mental illness (as a clinical disorder) is particularly focused on pathologies that affect cognition, emotional regulation, and overall functioning (Westerhof & Keyes, 2010) and is representative of poor mental health.

College athlete research has readily demonstrated a significant correlation exists between challenges associated with exposure to traumatic events and psychological stress, an antecedent and indicator of poor mental health (e.g., Beasley et al., 2020; Newman et al., 2023). For instance, among 91 NCAA Division III college athletes from one university, survey results revealed a negative correlation between worrying about the COVID-19 pandemic and mental wellbeing (Watts et al., 2022). However, there is a notable lack of research focusing on positive mental health outcomes as the complete state on the continuum of mental wellbeing.

Considered a potential predictor of mental wellbeing, resilience has been defined as the ability to withstand, adapt, or rebound after being confronted with adversity that threatens functioning, viability, or development (Masten, 2001; Masten et al., 2021). Due to the unique pressures and stressors that confront college athletes (e.g., physical and psychological demands, time commitments, social pressures), resilience may be particularly important for this unique population. Indeed, several studies have suggested that resilience significantly affects the relationship between organizational stress and mental burnout among college athletes (Wagstaff et al., 2018; Wu et al., 2022). Research has also demonstrated that characteristics of resilience (e.g., emotional regulation, managing stress) may contribute to mitigating negative mental outcomes following exposure to traumatic events (Chandler et al., 2020). In fact, intervention research examining the effectiveness of resilience training has shown promising results, with college athletes having an increased likelihood of using coping strategies to manage stress from sport and academic responsibilities (Sullivan et al., 2023). On the other hand, in a study with 253 Norwegian college athletes (ages 10 – 20.5), resilience has been found to be positively correlated to physical, psychological, and social wellbeing (Martin et al., 2021). In other words, resilience may not only mitigate poor mental health but also serve as a potential predictor of mental wellbeing (i.e., positive mental health).

Conceptual Framework

To better understand the relationship between resilience and positive mental wellbeing, this study was guided by the conceptual framework of sport resilience (Galli & Vealey, 2008). When athletes encounter adversity in sport, such experiences can produce a range of lasting negative effects, including emotional distress and psychological struggles (McLoughlin et al., 2021). Drawing upon Richardson et al.'s (1990) resiliency model, the conceptual framework of sport resilience posits that components of resilience—particularly timely and appropriate social support, as well as cognitive and behavioral coping strategies—can interact with the disruption caused by adversity to facilitate positive psychological outcomes, such as personal growth, improved perspective, and enhanced mental wellbeing (Galli & Vealey, 2008).

Richardson et al.'s (1990) resiliency model suggests that resilience begins with a state of biopsychospiritual homeostasis, wherein individuals experience a balanced physical, psychological, and spiritual state. However, this equilibrium is frequently challenged by stressors and traumatic events. When significant adversity disrupts this homeostasis, individuals are compelled to restore homeostasis by utilizing resilience components (e.g., personal and social resources). The conceptual framework of sport identifies several resilience components—such as social support, passion for sport, emotional regulation, and coping skills—as mechanisms through which athletes can bounce back from adverse experiences in sport (Galli & Vealey, 2008).

Furthermore, the conceptual framework of sport resilience acknowledges that reintegration following adversity does not always result in positive outcomes. Three potential outcomes are proposed: reintegration with loss, homeostatic reintegration, and resilient reintegration (Galli & Vealey, 2008). Reintegration with loss occurs when individuals survive adversity but lose protective factors in the process. Homeostatic reintegration involves a return to the previous level of functioning without significant gain or loss. In contrast, resilient reintegration refers to growth beyond the pre-adversity state, characterized by the acquisition of new or strengthened protective factors, ultimately contributing to improved mental wellbeing (Galli & Vealey, 2008). According to the conceptual framework of sport resilience, athlete resilience might mitigate the negative impact of traumatic or adversarial events on mental wellbeing outcomes. That is, theoretically, resilience may moderate the relationship between experiences of psychological stress and mental wellbeing. Among college athletes, empirical research examining the moderating role of resilience on positive wellbeing outcomes after traumatic events is warranted.

Study Purpose

Resilience among college athletes and other elite athletes has been recognized as a growing topic of interest over the last decade (Bryan et al., 2019; Gupta & McCarthy, 2024). Resilience has been found to be a prerequisite for elite sport participation (Westmattelmann et al., 2021) and a predictor of perceived athletic performance (Chrétien et al., 2024). Yet, from a strengths-based perspective (Zimmerman, 2013), how resilience moderates the effect of a traumatic event on mental wellbeing—as a

positive mental health outcome—has yet to be fully established. The purpose of this study is two-fold: (a) examine the impact of COVID-19 on mental wellbeing; and (b) examine the moderation effect of resilience on the relationship between COVID-19 and mental wellbeing among college athletes.

Method

Procedure and Participants

After obtaining ethical approval, college athletes from nine universities within an athletic conference in the northeast region of the United States were recruited via email. Upon providing consent, participants completed an online survey during the fall of 2020. Among the 368 college athletes who provided consent, 42 participants were removed due to entirely missing data (i.e., participants did not respond to the survey), and 104 participants were excluded due to complete missing data on one or more scales measuring the independent or dependent variables. The final sample was comprised of 222 NCAA college athletes, constituting approximately 5% to 10% of the total college athletes from the nine conference universities.

Participants were, on average, 21 years of age (SD = 1.3) and the majority identified as being white (n = 170, 76.6%) and women (n = 164, 73.9%). Among athletes of color (n = 51, 23.0%), the largest unique population self-identified as multiracial (n = 25, 11.3%), followed by Black (n = 13, 6.0%). All nine participating schools were represented, with proportions ranging from 22.5% (n = 50) to 3.6% (n = 8). Most participants (n = 209, 94.1%) were in their first four years of undergraduate study, with 26.6% in their first year and 25.7% in their second year. The majority (n = 142, 65.7%) had experience in more than one NCAA season. Track and field had the highest participant count (n = 53; 23.9%), followed by swimming and diving (n = 32; 14.4%), soccer (n = 26, 11.7%), lacrosse (n = 23, 10.4%), and cross-country (n = 22; 10.0%). See Table 1 for additional information.

Measurement Instruments

An online survey was created to examine the impact of the COVID-19 pandemic on the mental health of college athletes. The first part of the survey collected participant sociodemographic characteristics and sport experiences. Further, guided by the conceptual framework of sport resilience, the survey employed three scales to assess the relationships between traumatic event (independent variable), wellbeing (dependent variable), and resilience (moderator).

The 15-item Impact of Event Scale for COVID-19 (IES-COVID-19) was used to measure the traumatic stress symptoms due to the pandemic (Vanaken et al., 2020). Participants were invited to indicate how much the statements applied to them during the last four weeks. Example statements included “Regarding the situation related to COVID-19, I thought about it when I didn’t mean to.” and “Regarding the situation related to COVID-19, I stayed away from things that made me think about it.” A five-point scale was used to rate each item, spanning from 0 (not at all) to 4 (extremely). Higher scores indicated more significant impacts of the pandemic on the individual.

Table 1

Demographics for College Athlete Participants

	N = 222	
Variable	***n***	***%***
Gender		
Woman	164	73.9
Man	56	25.20
Genderqueer	1	0.50
Intersex	1	28.30
Race/ethnicity (*n* = 216)		
White	170	76.60
Multiracial	25	11.30
Black	13	5.90
Hispanic or Latinx	10	4.50
Asian	2	0.90
Native American or Alaskan Native	1	0.50
Academic Class Standing		
Freshman	59	26.60
Sophomore	57	25.70
Junior	56	25.20
Senior	37	16.70
Fifth+	7	3.20
Grads	6	2.70
NCAA Sports		
Track and Field	53	23.90
Swimming and Diving	32	14.40
Soccer	26	11.70
Lacross	23	10.40
Cross-Country	22	10.00
Other	66	29.73
NCAA Seasons (*n* = 216)		
First	74	33.30
Second	60	27.00
Third +	82	37.96
Age (*n* = 216)	***Mean***	***SD***
	21	1.29

The validation of IES-COVID-19 was conducted among university students and indicated acceptable internal consistency (α = .75; Vanaken et al., 2020). Cronbach's alpha for this study participants was .89, indicating good reliability.

The Brief Resilience Scale (BRS) was used to measure the capacity to rebound following undergoing adverse experiences (Smith et al., 2008). This scale consists of six items, with every other item being reverse-coded. Example questions included "How much do you agree that I tend to bounce back quickly after hard times?" and "How much do you agree that I have a hard time making it through stressful events?" A five-point scale was used to rate each item, spanning from 1(strongly disagree) to 5 (strongly agree). Scores for negatively coded items were reversed, ranging from 5 (strongly disagree) to 1 (strongly agree). Validation analysis of the BRS with two college student samples demonstrated the scale's high reliability ($\alpha_1 = .84$; $\alpha_2 = .87$) and a unitary construct predictability associated with personal characteristics (Smith et al., 2008). In this study, Cronbach's alpha was 0.86, indicating good reliability.

The Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWS) was used to measure mental wellbeing as a positive mental health outcome (Tennant et al., 2007; McKay & Andretta, 2017). The short version of the scale has seven items. Participants were invited to indicate how much the statements applied to them during the last four weeks. Example statements included "I've been feeling optimistic about the future." and "I've been feeling close to other people." A five-point scale was used to score each item, ranging from 1 (none of the time) to 5 (all of the time). Higher scores reflect a more positive affect, fulfilling interpersonal relationships, and positive functioning (Tennant et al., 2007). The SWEMWS was validated among youth participants (aged 13 – 24) and results suggested acceptable internal consistency (α = .78; McKay & Andretta, 2017). Cronbach's alpha for this study was 0.88, indicating good reliability.

Data Analyses

Upon preparing the dataset, the analytical process was comprised of two phases. Preliminary analyses were used to address the data's missing patterns, perform missing value imputation, and verify assumptions for regression models. Linear regression analyses were conducted to first examine the impact of COVID-19 on mental wellbeing. Finally, the moderation effect of resilience on the relationship between the impact of COVID-19 and mental wellbeing is examined. All analyses were conducted using IBM SPSS version 28.

A priori power analyses were conducted using the G*Power (Faul et al., 2009). The analysis indicated that, for linear multiple regression with three parameters (i.e., IES-COVID-19, resilience, and the interaction), a sample size of 202 participants would be required to detect a significant effect at a p-value of .05, a power of .80, and a small-medium effect size of $f^2 = .05$. Thus, the sample size for this study was deemed efficient.

Preliminary Analyses

Proportions and patterns of missing data for all three psychometric scales were assessed. The percentage of missing values per item fell between 0 and 1% (i.e., 0 to 2 missing values). Additionally, nonsignificant Little's missing test suggested data was missing completely at random. Consequently, multiple imputation was selected to treat missing values (Schlomer et al., 2010). Missing values for sociodemographic variables were not imputed. Following data imputation, Kolmogorov-Smirnova tests of normality were performed for the composite scores of independent, dependent, and mediator variables. All test results were significant ($p < .05$), suggesting a normal distribution of the data (George & Mallery, 2018).

Moreover, underlying assumptions for linear regression and moderation analyses were verified. These assumptions included continuous dependent variables, independence of the relationship between the dependent and independent variable, a linear relationship between the dependent and independent variable, normal distribution of residuals, homoscedasticity, absence of outliers, and multicollinearity. Particularly for assessing the linear relationship, Ordinary Least Squares linear regression analyses were conducted to examine the bivariate associations between the impact of COVID-19, resilience, and mental wellbeing. Potential extreme values were examined using Mahalanobis distance, Cook's distance, and Leverage point. A data point was considered an outlier if it did not meet two or more cutoff points. Overall, no outlying values were observed. All assumptions were deemed met.

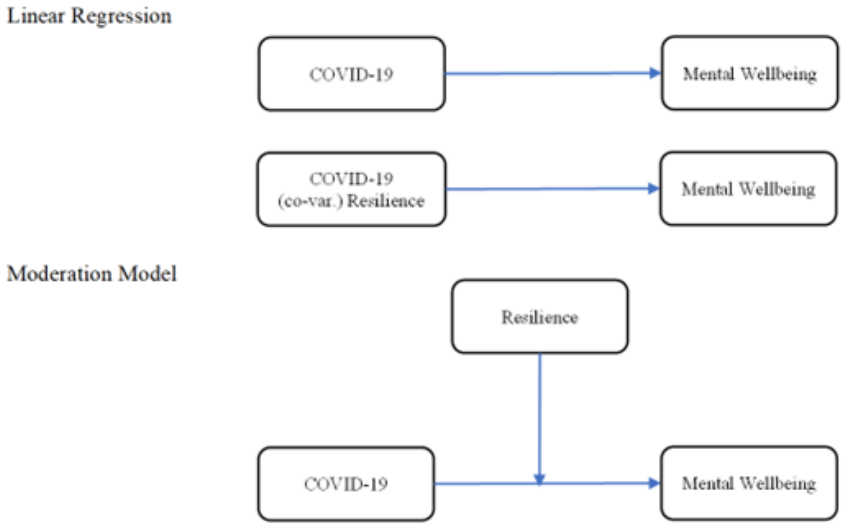
Main Analyses

The moderation analysis was conducted using the PROCESS version 4.3 for SPSS specifically. It is noteworthy that, unlike conventional regression analyses, PROCESS provides an output that includes the interaction of predictor and the moderator in the statistical model, along with the constant (Hayes, 2017). First, linear regression analysis was conducted to examine the impact of COVID-19 on mental wellbeing. Upon detecting significant bivariate linear association, a moderation model was developed. In the moderation model, the impact of COVID-19 served as the independent predictor. Resilience served as the moderator and mental wellbeing was the dependent variable. All variables in the model were standardized (see Figure 1 for model information).

Results

Regarding the impact of COVID-19, participants reported an average score of 21.76 ($SD = 11.37$) out of a possible score of 60. On average, the event of COVID-19 pandemic had a modest impact on college athletes. Additionally, participants reported an average score of 19.68 ($SD = 4.86$) out of a possible score of 30 for resilience and an average score of 20.55 ($SD = 5.25$) out of a possible score of 35 for mental wellbeing. Both average scores exceeded the midpoint (15 and 17.5, respectively) of the potential score range, indicating that, on average, college athletes rated their levels of resilience and mental wellbeing favorably.

Figure 1
Regression Models



Linear regression revealed a negative correlation between the impact of COVID-19 and mental wellbeing, such that as the severity of COVID-19 impact increased, overall mental wellbeing decreased (β = -0.328, F[1, 220] = 26.588, p < .001). Higher resilience scores were positively associated with enhanced mental wellbeing (β = 0.559, F[1, 215] = 97.944, p < .001). Notably, when controlling for resilience, the impact of COVID-19 remained significantly and negatively correlated with mental wellbeing (β = -0.240, F[1, 215] = 62.63, p < 0.001, ΔR^2 = 0.56, p < .001).

In the moderation model, the impact of COVID-19 positively and significantly predicted mental wellbeing among college athletes (β = 0.209, 95% CI [.0031; .4140], p = .047). Additionally, the interaction effect of the impact of COVID-19 and resilience on mental wellbeing was negative and significant (β = -0.016, 95% CI [-.0256; -.0060], p < .01). At a low moderation level of resilience ($Low_{resilience}$ = 14.88), the relationship between the impact of COVID-19 and mental wellbeing was nonsignificant (β = -0.026, 95% CI [-.0988; .0471], p = .486). At a moderate level of resilience ($Medium_{resilience}$ = 20.00), the impact of COVID-19 had a relatively moderate influence on mental wellbeing (β = -0.107, 95% CI [-.1562; -.0569], p < .001). At a high level of resilience ($High_{resilience}$ = 24.00), the impact of COVID-19 had relatively high influence on mental wellbeing (β = -0.170, 95% CI [-.2306; -.1085], p < .001; see Figure 2). Overall, the moderation model explained 39.76% of the variance in mental wellbeing (F[3, 213] = 46.869, p < .001; see Table 2).

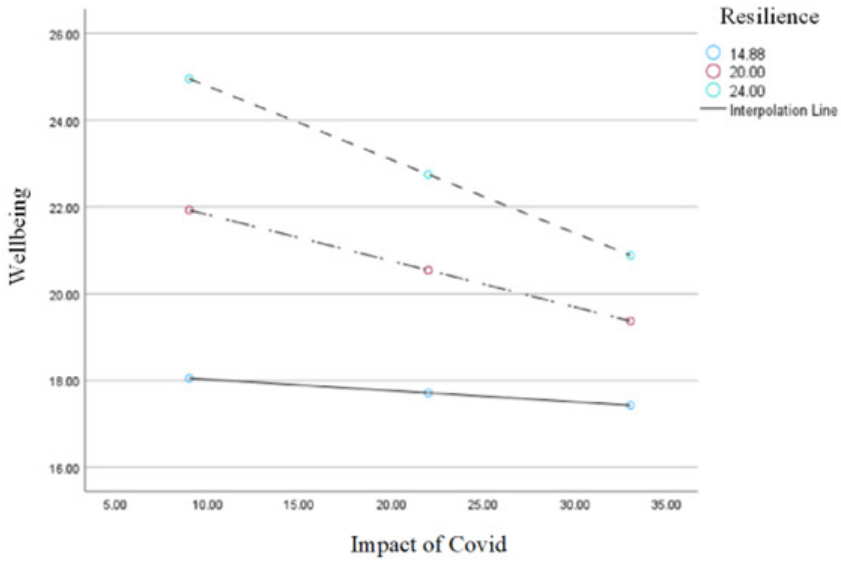
Table 2

Summary of Mediation Models (n = 217)

	β	*SE*	*t*	LLCI	ULCI
Impact of COVID-19 on mental wellbeing					
	0.2086	0.1042	2.0014*	0.0031	0.414
Resilience on mental wellbeing					
	0.8987	0.1198	7.5034***	0.6626	1.1348
Interaction effect on mental wellbeing					
	-0.0158	0.005	-3.1699**	-0.0256	-0.0060
Overall model	R^2	*SE*	*F*		
	0.3967	17.1542	46.8687***		

Note: $*p < 0.05$ $**p < 0.01$ $***p < 0.001$.

Figure 2
Moderation



Discussion

College athletes are confronted with unique mental health challenges, including physical and psychological risk factors. Not only are college athletes at seemingly greater risk for experiencing mental health concerns, but the traumatic stress caused by the COVID-19 pandemic has led to increased reports of mental health (Johnson, 2022). However, college athlete research has traditionally focused on negative mental health outcomes (e.g., Newman et al., 2023) and neglected to examine positive mental health outcomes, such as wellbeing. Taking a strength-based approach to mental wellbeing serves college athletes by better positioning them for potential future public health pandemics (e.g., avian influenza, measles). The purpose of this study was to examine the impact of COVID-19 on mental wellbeing, as well as examine the moderation effect of resilience on the relationship between COVID-19 and mental wellbeing. Overall, participants reported low levels of traumatic stress related to the pandemic and moderate levels of both resilience and mental wellbeing. In support of the existing literature related to resilience in sport, this study found that there was a statistically significant negative relationship between pandemic stress and wellbeing, with resilience being positively related to wellbeing. Finally, resilience was found to be a significant moderator of the relationship between college athlete wellbeing and traumatic stress.

The significance of a strength-based perspective that emphasizes positive mental health outcomes has been increasingly recognized by both sport psychologists (Gordon & Gucciardi, 2011; Wagstaff & Leach, 2015) and social workers, particularly within the emerging field of sport social work (Newman et al., 2022). At its core, a strengths-based perspective emphasizes the fundamental belief that every individual possesses unique strengths and assets and, in turn, the potential to overcome challenges and improve their quality of life (Benard, 2005). In alignment with Zimmerman's resiliency theory (2013) that emphasizes the strength-based perspective in resilience research, the conceptual framework of sport resilience (Galli & Vealey, 2008) and broader psychological literature (e.g., Hunsu et al., 2023; Sarkar & Fletcher, 2014) have identified a variety of strength-based contextual, social, and individual factors—such as social support, passion for sport, and effective coping strategies—that serve to mitigate the negative impact of traumatic experiences and psychological stress, thereby promoting positive mental wellbeing outcomes. This study contributes to the evolving conceptualization of resilience by emphasizing its moderating role in enhancing athletes' wellbeing and offers empirical support for the theoretical linkage proposed in the conceptual framework of sport resilience between adversity and positive mental wellbeing through the mechanism of resilience.

Across the world, the pandemic has continued to significantly impact mental health concerns and needs (Ettman et al., 2020; Twenge & Joiner, 2020), resulting in increased symptoms of traumatic stress. The present study found that, regardless of

individual resilience levels, the COVID-19 pandemic had an adverse impact on the mental wellbeing of all college athletes. However, findings also suggest that college athletes, in general, reported low levels of pandemic-related stress. This is somewhat surprising given prior research has clearly demonstrated that the pandemic has led and continues to lead to increased rates of depression, anxiety, and mental exhaustion among college athletes (Economou et al., 2021; Johnson, 2022).

Previous research has posited that participating in organized sport may lead to greater mental wellbeing and mental performance factors, like resilience, due to the structured environment, social support, and opportunities these programs provide for skill development (Westmattelmann et al., 2021). As such, compared to the general population, athletes tend to possess higher levels of resilience and the ability to adapt to adversity (Chrétien et al., 2024). Similar findings were highlighted in this study, with athletes having reported moderate levels of resilience. To this end, a relatively high level of wellbeing was found to be significantly associated with higher levels of resilience. This study supports the role of sport as a meaningful context for fostering resilience and ultimately promoting mental wellbeing, emphasizing the potential of athletic participation to facilitate positive psychological outcomes and enhance individuals' capacity to thrive under challenging circumstances.

Findings from this study also reveal that low, medium, and high levels of resilience had different moderation effects on the relationship between COVID-19 and wellbeing. Specifically, college athletes with higher levels of resilience reported a more pronounced negative association between COVID-19 and wellbeing, as the relationship was significantly moderated by the protective factor of resilience. Conversely, college athletes with lower levels of resilience reported that resilience had less of a discernible moderation effect, such that the negative relationship between COVID-19 and wellbeing appears to be negligible. This finding is encouraging, as it suggests that despite the significant impact of the COVID-19 pandemic on wellbeing, college athletes with higher levels of resilience were able to maintain better mental health outcomes compared to their peers with lower resilience. This underscores the importance of fostering resilience in college athletes, as it serves as a critical buffer against the adverse effects of external stressors like a global pandemic.

Of further note, there is an increasing recognition that resilience may not always be positive, rather resilience can also reflect maladaptive behaviors (Mahdiani & Ungar, 2021). For example, demonstrating resilience and "mental toughness" by competing through a serious injury may only reinforce mental health stigma. Regardless, within this study, athletes with higher levels of resilience also consistently reported higher levels of wellbeing—compared to those with medium or low levels of resilience—suggesting the general positive effect of resilience when experiencing a traumatic event. Ultimately, further research examining resilience on a continuum of adaptability may be necessary.

Limitations and Future Directions

No study is without its limitations. This study, for instance, relied on cross-sectional data, which inherently limits the capacity for causal inference. In the future,

longitudinal research should be considered to monitor resilience and wellbeing across a sport season and throughout the careers of college athletes. Such studies could provide insights into how mental health may be affected throughout different phases of one's athletic and academic career. Additionally, within this study, participants represented a relatively homogeneous population of college athletes. Future research must be inclusive of a diverse and representative sample of college athletes across conferences, regions, and demographics to enhance the generalizability of the findings. Further inquiry regarding the development of resilience and resilience-related life skills may be warranted. Such research may also consider examining the role of social support, team cohesion, mental health services, and other protective factors of mental health.

Conclusion

In support of the resilience literature and the conceptual framework of sport resilience, findings from this study help to illuminate the complex relationship between resilience and mental wellbeing during the COVID-19 pandemic. Regardless of stress level after the COVID-19 pandemic, college athletes with higher levels of resilience maintained relatively high levels of mental wellbeing, compared to their peers with lower resilience. These results underscore the importance of interdisciplinary and strength-based mental health support within collegiate athletics. For instance, athletic department administrators, coaches, athletic trainers, and licensed mental health professionals should prioritize developing resilience and resilience-related skills (e.g., coping strategies, emotional regulation) among athletes. Such life skills programs may simultaneously prepare college athletes for their unique everyday challenges, such as the physical and psychological demands of competition, rigorous training and travel schedules, time requirements for both athletics and academics, as well as any potential negative impact of future adversarial events.

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