

The Relationship of Resilience, Self-Compassion, and Social Support to Psychological Distress in Women Collegiate Athletes During COVID-19

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Abstract:

Given how COVID-19 had caused significant increases in collegiate athletes' psychological distress, we examined the extent to which such distress may have been ameliorated by the athletes' psychosocial resources (e.g., resilience). We used structural equation modeling to examine the direct and indirect relationships of resilience, self-compassion, and social support to women collegiate athletes' (N = 3,924; 81.2% White) psychological distress; athletes completed measures of these constructs from mid-April to mid-May 2020. Analyses revealed significant direct effects: More supported ($\beta = -0.12$ to -0.19), self-compassionate ($\beta = -0.48$ to -0.53), and resilient ($\beta = -0.21$ to -0.35) athletes experienced less psychological distress ($R^2 = .61-.65$). Further, self-compassion and social support were related indirectly (and inversely) to psychological distress through higher levels of resilience. These psychosocial resources appear to have played a positive role in how athletes coped with the pandemic, being associated with less psychological distress. These findings have application beyond the pandemic, providing direction for how sport psychology professionals may assist athletes in maintaining their well-being.

Keywords: psychological well-being | mental health | psychosocial resources

Article:

In March 2020, hundreds of thousands of college athletes were affected by the COVID-19 pandemic. Universities and colleges closed their doors, moving classes online and sending students away from campuses to live with family, with friends, or on their own. Further, the National Collegiate Athletic Association (NCAA) canceled all remaining sport seasons. College athletes, already at high risk for mental health concerns (e.g., Liu et al., 2018), now were living through a pandemic that threatened their physical health, educational opportunities, athletic identities, and psychological well-being. As a result, most had to leave their current support systems (e.g., universities and sport teams), relocating to new housing and geographic areas, and being unsure of when they might return to their campuses and their athletic lives (and identities). During the

initial weeks and months of this pandemic, college athletes experienced extreme disruptions in their lives as they were, essentially, removed from the primary systems (e.g., university, athletic department, and sport team) that had surrounded and supported them.

These disruptions that resulted from the COVID-19 pandemic were expected to cause increases in stress and decreases in the psychological well-being of all athletes (e.g., Stambulova et al., 2022). Although research on this topic during the initial months of the pandemic focused on the experiences of elite, professional, and international athletes, such as those who were in training for the 2020 Olympics (e.g., Madsen et al., 2021; Reardon et al., 2021; Şenışik et al., 2021; Stambulova et al., 2022), a few large-scale studies were conducted with collegiate athletes, finding comparably high levels of distress and mental health concerns (e.g., National Association of Intercollegiate Athletics, 2020; Slavin et al., 2022). For example, in April 2020, the NCAA surveyed collegiate athletes from all three divisions (N = 37,658) to assess their levels of mental health concerns in the immediate aftermath of COVID-19. They found that the collegiate athletes, constantly or most every day, felt sad (17%–31%), overwhelmed by anxiety (14%–27%), mentally exhausted (26%–39%), and hopeless (11%–16%) to name a few. Further, the NCAA noted that the rates of these concerns were substantively higher compared with pre-COVID levels. A much larger percentage of women, than men, athletes reported experiencing every mental health concern, a gender difference that has consistently existed among collegiate athletes (e.g., Brown et al., 2022) as well as adolescent nonathletes (Campbell et al., 2021), even prior to COVID-19.

Even though prevalence data indicated that substantive numbers of collegiate athletes, particularly women, were experiencing high levels of distress, anxiety, and depression (National Association of Intercollegiate Athletics, 2020; Slavin et al., 2022), there were still large percentages of athletes in these studies who were not or were experiencing such concerns at lower or more manageable levels. Thus, understanding the relationships of psychosocial resources (e.g., resilience and self-compassion) to athletes' stress and mental health concerns became a focus of researchers. Again, most studies (e.g., Bennett et al., 2022; Leguizamo et al., 2021; Madsen et al., 2021) were conducted with international, elite athletes, leaving a void in understanding the experiences of the U.S. collegiate athletes who also were affected at this time. Like other studies (e.g., Madsen et al., 2021), we examined the cross-sectional relationships of three established psychosocial resources—resilience, self-compassion, and social support—to women collegiate athletes' psychological distress within the framework of existing conceptual models, as detailed below. Taking this approach allowed us to propose theory-driven hypotheses that, if supported, would provide direction for later longitudinal analyses of the relationships. Further, we targeted women in our study because they are a high-risk group for mental health concerns as highlighted above. Research has consistently documented that girls and women have higher current, and longstanding, levels of mental health concerns compared with boys and men (e.g., Brown et al., 2022; Campbell et al., 2021; Li et al., 2017; National Association of Intercollegiate Athletics, 2020; Prowse et al., 2021; Wolanin et al., 2016). Such mental health concerns have worsened for college women, including athletes and nonathletes, during COVID (e.g., Chu & Rose-Ackley, 2023; National Association of Intercollegiate Athletics, 2020; Prowse et al., 2021), and college women nonathletes have reported having (and using) fewer psychological coping resources than their men counterparts (Clabaugh et al., 2021). Thus, research on how collegiate women athletes' psychological resources play a role in their psychological distress during a challenging time, such as COVID, is needed to be able to empirically inform practical implications for addressing similar concerns in the future.

Psychosocial Resources and Psychological Distress

Although resilience, social support, and self-compassion have been found to be directly related to positive, adaptive outcomes and lower levels of psychological distress (e.g., Drew & Matthews, 2019; Fogaca, 2021; Graupensperger et al., 2020; Madsen et al., 2021; Mosewich, Sabiston, et al., 2019; Neff & McGehee, 2010) within our study's conceptual framing, resilience played a central, unifying role in defining how these resources may relate to collegiate athletes' psychological reactions during the initial phase of the COVID-19 pandemic. Resilience implies the presence of adversity, in this case the COVID-19 pandemic and the disruptions it wrought, and the ability to react competently, effectively, and adaptively to that adversity and to maintain, or restore a positive state of psychological well-being (Galli & Gonzalez, 2015). Although there is no consensus as to a unifying theory of resilience, Fletcher and Sarkar's (2012) grounded model of resilience is well regarded and served as our conceptual frame. In their grounded model, Fletcher and Sarkar noted that cognitive appraisals were key in determining how athletes respond to stressors, such as the adversity brought by the COVID-19 pandemic. Resilient athletes would cope more effectively, and thus experience less distress, by appraising situations as challenges rather than threats (Mancini & Bonanno, 2009). Thus, resilience may be necessary not only for sustaining sport success, but for developing and maintaining psychological well-being, particularly during adverse times (Drew & Matthews, 2019; Fletcher & Sarkar, 2012; Hosseini & Besharat, 2010). In the 3 months following the onset of the COVID-19 pandemic, Madsen et al. (2021) surveyed Danish soccer players in relation to their resilience and psychological well-being. They found that the athletes' resilience related positively to their reported well-being, suggesting that resilience may have been playing a protective role.

Social support is the perceived availability and adequacy of support from different sources, such as friends and family (Taylor, 2011; Tonsing et al., 2012). Within sport, social support has been related to greater well-being as well as lower levels of anxiety and depression (e.g., DeFreese & Smith, 2014; Hagiwara et al., 2021) and, in the immediate aftermath of COVID-19, Graupensperger et al. (2020) found that collegiate athletes' (63% women) social support from, and connectedness to, their teammates were positively associated with more psychological, social, and emotional well-being. These studies' findings underscore the idea that social support has positive direct effects on individuals' psychological responses (Chu et al., 2010; Taylor, 2011). For example, emotional support (e.g., supportive listening) may lessen individuals' psychological distress, whereas informational and tangible support (e.g., offering advice) may help individuals directly address (and solve) the problems that are causing distress. However, within our conceptual model, we propose that social support's relationship to women collegiate athletes' psychological distress will not only be direct but indirect through their level of resilience. Within their grounded model of resilience, Fletcher and Sarkar (2012) identified social support as one of many variables that would have direct and positive influence on athletes' resilience, suggesting that athletes who felt more supported would be more likely to appraise situations as challenges and be able to adapt positively to the stressors they were facing. For example, through interviews with 12 Olympians, Fletcher and Sarkar found that these athletes believed they were receiving high-quality social support and, subsequently, perceived themselves as more resilient and thus better able to handle pressures from within their sports.

Neff (2003b) conceptualized self-compassion along three dimensions: (a) self-kindness—being understanding toward oneself, rather than self-critical, in instances of pain or failure; (b) common humanity—perceiving that challenges and suffering, and feelings of personal

inadequacies, are part of a larger, shared human experience; and (c) mindfulness—observing and holding painful thoughts and feelings in a non-overidentifying, balanced, and nonjudgmental awareness. In delineating the relationships among these dimensions, Neff and McGehee (2010) noted that they “... combine and mutually interact to create a self-compassionate frame of mind” (p. 226). Therefore, in managing uncontrollable events, such as the COVID-19 pandemic, self-compassionate athletes would know that they were not alone in their struggles, thus generating more self-care and emotional warmth (Neff, 2003a; Soya & Wilcomb, 2015). Further, they would be more accepting of social isolation (e.g., quarantine) and be better able to stay present and kind with themselves during these moments of social deprivation. Similar to social support, we conceptualized self-compassion’s protective effects as not just direct but also as indirect through increases in athletes’ resilience, specifically in helping them appraise events (e.g., COVID-19) as challenges versus threats, and thus lowering their psychological distress (Cormier et al., 2023; Mosewich, Sabiston, et al., 2019; Wilson et al., 2019).

Although self-compassion was not directly included in Fletcher and Sarkar’s (2012) grounded model, a recent meta-analysis documented that training programs based in mindfulness, one of self-compassion’s key dimensions, were associated with increases in athlete resilience (Joyce et al., 2018). Further, among the psychological factors within Fletcher and Sarkar’s grounded model proposed to positively influence how athletes appraise stressful situations, focus, positive personality, and motivation could represent the three dimensions of self-compassion. First, Fletcher and Sarkar defined the construct focus as being able to focus on oneself and not be distracted by others, which represents the dimension of being mindful in self-compassion. Second, they included being emotionally stable within their definition of positive personality, which represents the dimensions of self-kindness and mindfulness in self-compassion. Third, Fletcher and Sarkar described the construct motivation as both self-determining (i.e., internal) and non-self-determining (i.e., external); resilience requires valuing and performing with external demands and challenging situations that all athletes experience, representing the dimensions of common humanity and mindfulness in self-compassion. Although there is not direct research addressing the self-compassion to resilience connection (Cormier et al., 2023), women athletes have described self-compassion as critical in their developing mental toughness, a construct similar to resilience, which they believed helped them reappraise adversity and move forward positively (Wilson et al., 2019). Additionally, Ferguson et al. (2015) found that women athletes’ self-compassion indirectly predicted better well-being through greater positivity and perseverance (comparable to resilience) in response to emotionally difficult sport situations.

Purpose

Given research documenting women collegiate athletes were a high-risk group for psychological distress in the immediate aftermath of COVID-19 (e.g., National Association of Intercollegiate Athletics, 2020), we explored the direct and indirect relationships of self-compassion, social support, and resilience to their psychological distress (i.e., depression and perceived stress) at this point in time. Addressing the gap highlighted in Galli and Gonzalez’s (2015) review of resilience research, we tested a conceptual model to “... estimate the predictability of personal and environmental factors suggested to influence resilience” (p. 250). We used Fletcher and Sarkar’s (2012) grounded model to center resilience, examining the indirect relationships of social support (Graupensperger et al., 2020) and self-compassion (Cormier et al., 2023) to the athletes’ psychological distress through having higher levels of resilience. We used structural equation

modeling to test and compare the two theory-derived models: (a) indirect effects model (where the relationships of social support and self-compassion to psychological distress occurred only through resilience) and (b) total effects model (where social support and self-compassion related to psychological distress directly but also indirectly through resilience). We hypothesized that the total effects, compared to the indirect effects only, model would fit the data significantly better and provide clarity on how women collegiate athletes' psychosocial resources related to their psychological distress in the immediate aftermath of the COVID-19 pandemic. Through this process, and the validation of one or both models, a basis for future longitudinal studies would be provided that could determine the temporal relationships among the psychosocial resources and their ability to lessen future psychological distress.

Methods

Participants

NCAA women collegiate athletes ($N = 3,924$; $M_{age} = 20.02$ years, $SD = 1.28$ years) who were drawn from universities and colleges across the 50 U.S. states participated. Athletes were evenly distributed across year in school, primarily identified as White ($n = 3,186$; 81.2%) and represented 24 different sports. See Supplementary Table S1 (available online) for demographic details.

Instruments

Perceived Stress

The 10-item Perceived Stress Scale (Cohen et al., 1983) assesses the degree to which participants perceive situations as stressful, which is significantly correlated with measures of state ($r = .46$) and trait ($r = .72$; Onieva-Zafra et al., 2020) anxiety. For each item, such as "How often have you felt difficulties were piling up so high that you could not overcome them?" Athletes responded from 0 (never) to 4 (very often) based on their experiences over the prior 2 weeks. Total score is the sum of the items and can range from 0 (low stress) to 40 (high stress). The Perceived Stress Scale total score was included as one of the two indicators for the psychological distress latent variable (LV) in the structural models we tested. Numerous studies have supported the Perceived Stress Scale's validity and reliability for the general population (e.g., Ramírez & Hernández, 2007; Rees et al., 2010) and among collegiate athletes (Chiu et al., 2016). In the current sample, Cronbach's alpha was .81.

Depressive Symptomatology

The two-item Patient Health Questionnaire-2 (PHQ-2; Kroenke et al., 2003), derived from the original PHQ-9 (Spitzer et al., 1999), assessed depressive symptomatology. For each item, such as "little interest or pleasure in doing things," athletes responded from 0 (not at all) to 3 (nearly every day) based on how they had been feeling during the prior 2 weeks. Total score is the sum of the items and can range from 0 (no symptoms) to 6 (high symptoms). The PHQ total score was one of two indicators for the psychological distress LV. The PHQ-2 predicted depression at an equivalent rate as structured psychiatric interviews (Kroenke et al., 2003) and showed strong associations

with mental health functioning in athletes (Zepp et al., 2021). In the current sample, Cronbach's alpha was .75.

Resilience

The six-item Brief Resilience Scale (Smith et al., 2008) assesses the ability to bounce back from stressful situations. For each item, such as "I have a hard time making it through stressful events," athletes responded from 1 (strongly disagree) to 5 (strongly agree). Brief Resilience Scale was found significantly correlated with other measures of resilience (Smith et al., 2008) and reliable in collegiate athletes (Martin et al., 2021). We defined the resilience LV by the two Brief Resilience Scale facets identified by Kyriazos et al. (2018). The internal consistency reliability of one facet was 0.45; however, after removing one item, the two-item score had acceptable reliability (alpha = .76). The alpha for the second facet, which was comprised of three items, was .78.

Social Support

We assessed social support from family and friends through eight items from the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). For each item, such as "I get the emotional help and support I need from my family," athletes responded from 1 (very strongly disagree) to 7 (very strongly agree) based on the support they had received over the prior 2 weeks. Total score for each dimension—family (four items) and friends (four items)—are the mean of those items; higher scores indicate more support. Social support LV was defined by these two dimensions of support. Among college students, Zimet et al. (1988) found negative correlations with depression ($r = -.25$) and anxiety ($r = -.18$). Multidimensional Scale of Perceived Social Support has been shown reliable in assessing collegiate athletes' social support (Anderson et al., 2022). In the current sample, Cronbach's alpha was .94 (friends) and .85 (family).

Self-Compassion

The 12-item Self-Compassion Scale–Short Form, derived from the original 26-item Self-Compassion Scale (Neff, 2003a), assesses self-compassion across the dimensions of self-kindness, common humanity, and mindfulness (Raes et al., 2011). Athletes rated each item, such as "I try to be understanding and patient toward those aspects of my personality I don't like" from 1 (almost never) to 5 (almost always). The Self-Compassion Scale–Short Form has a .97 correlation with the original scale (Raes et al., 2011) and has been associated with lower levels of depression ($r = -.51$) and anxiety ($r = -.65$), and more satisfaction with life ($r = .45$; Neff, 2003b; Neff & Germer, 2017). Self-Compassion Scale–Short Form has been shown to be reliable in assessing collegiate athletes' self-compassion (Cormier et al., 2023). In the current sample, Cronbach's alpha for the 12-item scale was .81.

Initially, we defined the self-compassion LV through the two general factors (self-compassion and self-coldness; Brenner et al., 2017). However, in testing the measurement model, the Composite Reliability (Composite Reliability = 0.55; cutoff = 0.70) and Average Variance Extracted (Average Variance Extracted = 0.38; cutoff = 0.50) were low, suggesting poor internal consistency and poor construct validity, respectively (Hair et al., 2014). To address this problem, we reconceptualized the indicators into three parcels using the "Item-to-Construct Balance" parceling technique (Little et al., 2002). With this reconceptualization, the Composite Reliability

and Average Variance Extracted values exceeded the required cutoffs and the parcels loaded significantly onto the self-compassion LV (all loadings >0.74).

Procedure

Data collection occurred from mid-April 2020 to mid-May 2020, which comprised the second month of the COVID-19 pandemic and cancelation of collegiate sports. Upon institutional review board approval, we solicited university athletic departments' assistance to disseminate our study to their collegiate athletes. Participating athletic departments sent study information through their preferred modes of communication (e.g., email and Teamworks messaging system [Teamworks Innovations]). Each message contained a brief description of the larger parent study (examination of collegiate athletes' psychological well-being during COVID-19) as well as the Qualtrics' survey link. Collegiate athletes first provided consent and then completed the survey. At the end, they could enter themselves into a random drawing for one of several \$200 Amazon e-gift cards. Because we did not have access to the number of emails sent out by the schools, we cannot determine a response rate for participation, and thus, ours is a nationally based sample of convenience.

Data Analysis

First, we examined data missingness. Little's missing-completely-at-random test was nonsignificant ($p > .05$); therefore, data were considered to be missing completely at random. This finding met the assumptions for multiple imputation to replace missing data (Enders & Baraldi, 2018; Moore et al., 2020); we imputed the data 100 times with PcAux (Free Software Foundation, Inc.; Lang et al., 2017) using the Markov-chain Monte Carlo method with informative principle components as auxiliary variables (Howard et al., 2015). We then created a single, aggregated, grand mean data set for our analyses (Lang & Little, 2014). As recommended, we conducted the imputation at the item level (Gottschall et al., 2012). Data passed normality based upon skewness and kurtosis, as well as examination of the histograms for outliers.

Second, given our large sample size, we followed a split-sample approach to calibrate, and then validate, the results of our theory-based model (Byrne, 2006). We randomly split the original sample into two approximately equal groups: calibration sample ($n = 1,958$) and validation sample ($n = 1,937$; see Supplementary Table S1 [available online]). After computing means, standard deviations, and correlations in SPSS we used version 27 of IBM SPSS Amos (Arbuckle, 2014) with the maximum likelihood estimator for both structural equation modeling analyses (Kline, 2015). With the calibration data set, we established the configural measurement model and used the following fit index criterion values for acceptable fit: Tucker–Lewis Index (TLI) and comparative-fit index (CFI) $\geq .90$, plus root-mean-square error of approximation (RMSEA) $\leq .08$ (Hu & Bentler, 1999). We report the 90% confidence interval (90% CI) of the RMSEA to assist with our gestalt decision making, as RMSEA performs less well with the combination of large samples and smaller, simpler models (Little, 2013). We did not use standardized root mean square residual because it often provides inflated values with models that have low degrees of freedom (Little, 2013), such as ours. In the calibration sample, we tested the total, and indirect, effects models separately at the structural level. We determined the better fitting model by testing the difference across the model χ^2 values and considering the changes in CFI values. Consistent with best practices, we determined the significance of indirect and total effects through the 99% CIs

based on 10,000 bootstraps (Preacher & Hayes, 2008). In the Validation Sample, we replicated these steps so we could compare our structural results (i.e., parameter estimates and CIs) with those from the Calibration Sample to determine their level of agreement and increase support for generalizability of the results.

Results

Table 1 contains the correlations, means, and standard deviations of the measured variables included in the structural equation modeling analyses for the Calibration and Validation Samples.

Measurement Model

We tested the configural measurement model fit using the Calibration Sample; the overall fit was acceptable ($\chi^2[20] = 313.9$; CFI = .952; TLI = .914; RMSEA = .087, 90% CI [.078, .095]). We then retested the measurement model in the Validation Sample; again, overall model fit was acceptable ($\chi^2[20] = 371.8$; CFI = .946; TLI = .903; RMSEA = .095, 90% CI [.087, .104]). All factor loadings were significant and in the expected direction (see Supplementary Table S2 [available online]). Correlations among the LVs ranged from $-.49$ to $-.73$ and $.36$ to $.60$.

Structural Model

First, we compared the model fit of the indirect effects model with the total effects models in the calibration sample. The indirect effects model fit significantly worse than the indirect effects model ($\Delta\chi^2[2] = 139.521$, $p < .001$); thus, we report findings only for the better-fitting total effects model. As hypothesized, all direct pathways were related significantly to lower levels of Psychological Distress: Resilience ($B = -1.66$, 99% bias-corrected and accelerated [Bca] CI $[-2.76, -0.63]$), Self-Compassion ($B = -3.99$, 99% Bca CI $[-4.76, -3.24]$), and Social Support ($B = -1.22$, 99% Bca CI $[-1.87, -0.62]$). Further, the two indirect effects were significant: Self-Compassion \rightarrow Resilience \rightarrow Psychological Distress: $B = -0.79$, 99% Bca CI $[-1.33, -0.32]$; Social Support \rightarrow Resilience \rightarrow Psychological Distress: $B = -0.43$, 99% Bca CI $[-0.82, -0.17]$. The total effects, which included the direct and indirect effects, were significant for social support ($B = -1.66$, 99% Bca CI $[-2.20, -1.15]$) and for self-compassion ($B = -4.79$, 99% Bca CI $[-5.46, -4.11]$). Social support and self-compassion explained 44% of the variance in the athletes' resilience; all three variables, accounting for both direct and indirect effects, explained 61% of the variance in women athletes' psychological distress.

In the validation sample, all direct pathways were significant and in the hypothesized directions in relationship to lower levels of Psychological Distress: Resilience ($B = -2.65$, 99% Bca CI $[-3.86, -1.66]$), Self-Compassion ($B = -3.89$, 99% Bca CI $[-4.64, -3.07]$), and Social Support ($B = -0.85$, 99% Bca CI $[-1.61, -0.11]$). Further, the two indirect effects were significant: Self-Compassion \rightarrow Resilience \rightarrow Psychological Distress: $B = -1.31$, 99% Bca CI $[-1.96, -0.77]$; Social Support \rightarrow Resilience \rightarrow Psychological Distress: $B = -1.01$, 99% Bca CI $[-1.64, -0.56]$. The total effects for social support ($B = -1.86$, 99% Bca CI $[-2.45, -1.33]$) and self-compassion ($B = -5.19$, 99% Bca CI $[-5.88, -4.50]$) were significant as well. Social support and self-compassion explained 50% of the variance in resilience; all three constructs, accounting for both direct and indirect effects, explained 65% of the variance of the athletes' psychological distress. Comparing the calibration and validation samples, all direct, indirect, and total effect parameter

Table 1. Correlation Matrix of Measured Variables in Sample A (n = 1,958) and Sample B (n = 1,937)

	1	2	3	4	5	6	7	8	9	<i>M</i>	<i>SD</i>
1. Depression		.54	-.36	-.23	.26	-.34	-.40	-.40	-.36	1.91	1.66
2. Perceived stress	.53		-.29	-.24	-.42	-.39	-.50	-.42	-.51	19.70	6.07
3. Social support family	-.36	-.27		.56	.04	.39	.23	.36	.17	5.05	1.71
4. Social support friends	-.24	-.22	.56		.13	.27	.20	.25	.17	5.67	1.14
5. Resilience parcel 1	-.21	-.38	.05	.11		.46	.35	.25	.42	3.41	0.80
6. Resilience parcel 2	-.29	-.33	.33	.25	.45		.31	.39	.33	3.38	0.89
7. Self-compassion parcel 1	-.38	-.49	.23	.18	.32	.29		.64	.69	2.94	0.79
8. Self-compassion parcel 2	-.40	-.43	.33	.23	.27	.38	.65		.57	3.01	0.81
9. Self-compassion parcel 3	-.34	-.49	.17	.17	.40	.32	.67	.58		3.12	0.78
<i>M</i>	1.90	19.72	5.05	5.65	3.45	3.45	2.93	3.02	3.15		
<i>SD</i>	1.61	6.00	1.70	1.17	0.77	0.87	0.79	0.83	0.77		

Note. Correlations for calibration sample are below the diagonal, and correlations for validation sample are above the diagonal. Perceived stress can range from 0, low, to 40, high. Depression can range from 0, low, to 6, high. Resilience 1 and 2 can range from 1, low resilience, to 5, high resilience. Social support from family or from friends can range from 1, low support, to 7, high support. Self-compassion 1, 2, and 3, which represent the three four-item parcels, can range from 1, low self-compassion, to 5, high self-compassion. Correlations above $\pm.07$ are significant at $p < .01$.

estimates were within the 99% CI of the other sample. The one exception was for the indirect effects of social support to psychological distress, though 99% CIs of each parameter overlapped. The overlap of all the parameter estimates CIs demonstrates that the relationships are generalizable and consistent across the two samples. Please see Figure 1 for the structural model with parameter estimates.

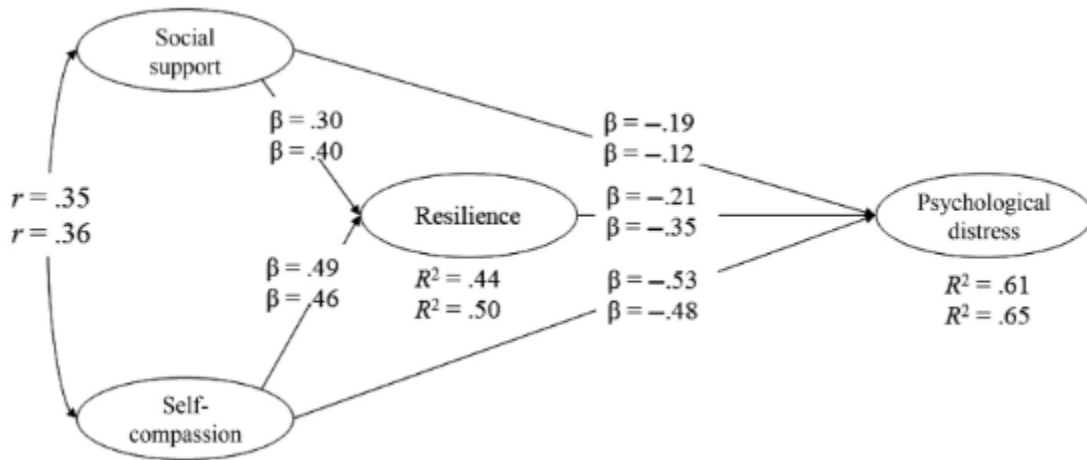


Figure 1. Structural model with parameter estimates. Note. The top numbers represent the calibration sample, and the bottom numbers represent the validation sample. The standardized regression coefficients are shown in the figure and before for the indirect effects. All were significant at $p < .001$. The following total and indirect effects were significant (β_A for calibration sample; β_B for validation sample): Total Effect Social Support \rightarrow Psychological Distress: $\beta_A = -0.253$, 90% CI $[-0.307, -0.196]$; $\beta_B = -0.258$, 90% CI $[-0.306, -0.206]$; Indirect Social Support \rightarrow Resilience \rightarrow Psychological Distress: $\beta_A = -0.065$, 90% CI $[-0.099, -0.041]$; $\beta_B = -0.140$, 90% CI $[-0.190, -0.100]$; Total Effect Self-Compassion \rightarrow Psychological Distress: $\beta_A = -0.639$, 90% CI $[-0.679, -0.597]$; $\beta_B = -0.638$, 90% CI $[-0.679, -0.600]$; Indirect Self-Compassion \rightarrow Resilience \rightarrow Psychological Distress: $\beta_A = -0.106$, 90% CI $[-0.148, -0.069]$; $\beta_B = -0.161$, 90% CI $[-0.207, -0.122]$. Note. CI = confidence interval

Discussion

Based within Fletcher and Sarkar's (2012) grounded theory of Resilience, we examined the relationships of Social Support, Self-Compassion, and resilience to women collegiate athletes' Psychological Distress (i.e., depression and perceived stress) in the immediate aftermath of the COVID-19 pandemic. As hypothesized, and found consistently across the two samples, the total effects model, compared to the indirect effects model, provided a better fit to the data. In the total effects model, social support, self-compassion, and resilience were directly, and indirectly through higher levels of resilience, related to less Psychological Distress. Specifically, women athletes who were more socially supported, self-compassionate, and resilient reported experiencing less psychological distress in the tumultuous time and difficult realities of COVID-19 and NCAA restrictions. Given that each psychosocial variable is conceptually and theoretically distinct (Fletcher & Sarkar, 2012; Neff, 2003a, 2003b; Laksmi et al., 2020), we expected each to contribute uniquely to the women athletes' psychological distress and assist them through different mechanisms.

The inverse relationship between social support and psychological distress is consistent with past research (e.g., Chu et al., 2010) and a study of collegiate athletes during COVID-19

(Graupensperger et al., 2020). Within the United States, the pandemic caused disruptions to the higher education system (e.g., campus shutdowns and virtual learning) and led to the unprecedented cancelation of collegiate sports. The social adjustments that these changes required (e.g., social distancing) likely increased feelings of isolation, depression, and anxiety, which may have been particularly salient and problematic for young women (e.g., Pieh et al., 2020). However, even in the midst of these disruptions the collegiate women athletes in our sample who still felt supported by, and connected to, family and friends likely believed these people were there to help them, both emotionally and tangibly. Such support, connection, and assistance may have helped them feel more able to appraise and cope with what was unfolding in relation to the pandemic in a more positive and effective manner. For example, the socially supported athletes may have been more likely to view the disruptions in their lives, from education to sport to living arrangements, as manageable challenges, rather than as events that were overwhelming, threatening, and, ultimately psychologically distressing.

Similar to findings from research on nonathletes during the pandemic (e.g., Beato et al., 2021; Hatun & Kurtça, 2022) and research on athletes prior to the pandemic (Walton et al., 2020), the women collegiate athletes' self-compassion was inversely, and most strongly of the three resources we tested, related to their psychological distress. The components of self-compassion—self-kindness, common humanity, and mindfulness—likely helped them be accepting and kind with themselves, be present and nonjudgmental with their thoughts and feelings, and recognize that they were not alone in their struggles. Adopting all of these perspectives, which is the basis of being self-compassionate, would have facilitated feelings of connection and belonging and more effective coping with the effects of the pandemic, thus reducing the likelihood that they would feel psychologically distressed (Deniz, 2021).

Consistent with past research (e.g., Fletcher & Sarkar, 2012; Hosseini & Besharat, 2010; Ramazani & Hejazi, 2020), the women collegiate athletes who perceived themselves as resilient—that is, they believed they could bounce back or recover from stressful events—reported lower levels of psychological distress. Similarly, Madsen et al. (2021) found that resilience served as a protective factor for well-being and emotional stability in young male soccer athletes during the initial phase of the pandemic. Thus, during the initial phase of the COVID-19 pandemic, where new stressors were emerging almost daily, these women collegiate athletes had to cope with an ever-changing landscape related to the direct health effects of the virus (e.g., infection and illness), the ripple effects of the virus (e.g., family financial stress), and the ongoing uncertainty about whether they would play collegiate sports in the 2020–2021 year (e.g., scholarship status and playing time). The athletes who perceived themselves to be resilient likely appraised all that was unfolding around them as challenges that could be handled, which helped them remain optimistic, motivated, and less prone to feelings of depression and stress. Similarly, Bennett et al. (2022) found that, among 21 Canadian athletes, they coped by adopting a more positive appraisal of the postponement of the 2020 Olympics, viewing it as an opportunity for growth.

In addition to these direct relationships, as we hypothesized in our conceptual model, the women collegiate athletes who felt supported by family and friends and who were self-compassionate (e.g., being kind and mindful) also reported being more resilient, which in turn was related to lower levels of psychological distress. In their grounded theory model of athlete resilience, Fletcher and Sarkar (2012) identified social support as a key psychological factor that would positively influence athletes' primary appraisals of stressful events. Through interviews with Olympic champions, they found that social support helped the athletes feel loved and cared for and bolstered their sense of competence, which they connected to an increased ability to cope

with performance stressors. In the immediate aftermath of the pandemic, Hatun and Kurtça (2022) found that Turkish adults' self-compassion was inversely related to their psychological distress through higher levels of resilience. Additionally, Ewert et al.'s (2021) meta-analysis of self-compassion and coping indicated that self-compassion is strongly and positively associated with adaptive coping, which may contribute to resilience through perceiving distressing feelings with awareness, a sense of common humanity, and kindness. Thus, consistent with Fletcher and Sarkar's (2012) grounded theory model, and our conceptualization of the psychosocial resources, athletes' resilience may be bolstered by both being immersed in a supportive network and adopting a self-compassionate stance. Such resilience, in turn may help athletes' cope effectively with stressful situations, like the COVID-19 pandemic.

Although the present study had strengths, including a large, diverse sample, testing a theory-driven model, and data collection in the immediate aftermath of the COVID-19 pandemic, limitations existed that warrant discussion. First, although acceptable (and practical) given our nationally based sample, our reliance on self-report assessments introduces the potential for social desirability bias, which could have manifested in under, or over, reporting of distress and psychosocial resources. However, the relationships that did emerge among the study variables were consistent across the split samples and with past research and theoretical predictions. Second, our study revealed clear, consistent, and theoretically supported relationships between the psychosocial resource variables and the athletes' psychological distress; however, our reliance on quantitative measures did not allow us to explore the specific aspects of support and self-compassion, for example, that may have been most helpful, and how such resources may have led to the athletes feeling more resilient. In future studies, a mixed-method approach would allow researchers to add depth and breadth in understanding what the athletes are specifically doing to cope in such stressful circumstances. Finally, the cross-sectional methodology does not allow for consideration of changes over time or to make causal inferences. Our findings, though, are consistent with theory, research, and our a priori hypotheses, and offer a window into how athletes were responding in the immediate aftermath of COVID-19 pandemic. Further, our validated model now provides direction for longitudinal studies that can truly test mediational effects among the psychosocial variables. Such longitudinal research would determine which psychosocial resources attenuate athletes' psychological distress. If the use of such designs corroborates our cross-sectional findings, the results would provide solid evidence for interventions that promote the development of social support, self-compassion, and resilience among collegiate women athletes to protect them against future psychological distress.

Our results were obtained in the context of women collegiate athletes' experiences of an unprecedented global health pandemic, but the reality is that even in the absence of such an event, women athletes have been experiencing increasing levels of mental health concerns, including depression, anxiety, and body dissatisfaction (e.g., Moore, 2017; Wolanin et al., 2016). Thus, our findings have practical implications for sports medicine professionals who work with collegiate, and possibly all, women athletes to teach them how to manage, and minimize, their distress (e.g., Fogaca, 2021). Athletic departments must make resource commitments (e.g., space, personnel, and funding) to help athletes develop these psychosocial resources. For example, athletic departments should prioritize the hiring of mental health-trained professionals, such as sport psychologists, who could then lead the intervention efforts that target the psychosocial resources most strongly aligned with women athletes' psychological well-being. As mentioned previously, if longitudinal studies support our findings, then there would be additional empirical support for increasing social support, self-compassion, and resilience, similar to programming that has already been tested and

shown effective with women athletes in relation to other psychological outcomes (e.g., Fogaca, 2021; Mosewich, Ferguson, et al., 2019; Voelker et al., 2019, 2021). More specifically, sport psychologists might collaborate with researchers to develop and test such programming within university athletic departments, which would then increase the number of empirically supported, and field-tested, treatments available to women athletes.

Across the split samples, we determined that social support, self-compassion, and resilience were important in understanding why women collegiate athletes experienced (and reported) less psychological distress. Although we collected our data in the context of a specific crisis, the empirically supported relationships in our conceptual model have application beyond this pandemic and can guide how sports medicine professionals intervene with women athletes to improve their general mental health. Given that social support, self-compassion, and resilience can be improved through structured training and interventions, cultivating them would provide women athletes with psychological tools and resources to help them manage the ongoing stress endemic to collegiate sports and thus improve their psychological health and well-being, and likely their academic and sport performances. Taken together, social support, self-compassion, and resilience form a unique triad of psychosocial resources that are directly, and indirectly, related to women athletes' psychological well-being.

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