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A two-sample examination of the relationship between trait emotional intelligence, burnout, and coping strategies in athletes

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Abstract

Competitive sport has the potential to increase chronic stress and hence the risk of burnout. The aim of this paper was first to examine the relationship between athlete burnout and trait emotional intelligence (TEI), and second to look at the mediating role of coping strategies between TEI and athlete burnout. In two samples of athletes ($N^1 = 290$; $N^2 = 144$), we conducted correlation analyses linking dimensions of TEI with athlete burnout and found negative correlations. We then tested a structural equation model in the second sample hypothesizing an indirect link between TEI and athlete burnout via coping strategies. Results showed a mediation effect of emotion-focused to problem-focused coping between TEI and athlete burnout. Avoidance coping showed a positive direct effect on athlete burnout. Further research should investigate effective coping strategies and clarify whether emotional intelligence training may be used to protect athletes from developing burnout.

Keywords: *emotion-focused coping; mediation effect; burnout prevention; mental health*

Introduction

Athletes are faced with a wide range of contextual stressors stemming from the physical demands and psychosocial pressures associated with training and competition (Gustafsson et al., 2017), which can contribute to athlete burnout and impact well-being (Schellenberg et al., 2013). Identifying factors influencing athlete burnout may be crucial to reducing prevalence, promoting prevention, and enhancing athletes' long-term well-being (Nicholls et al., 2022). According to the Integrated Model of Athlete Burnout (Gustafsson et al., 2011), individual differences and coping strategies represent potential influencing factors. One individual difference that is negatively related to athlete burnout is trait emotional intelligence (TEI; DeFreese & Barczak, 2017). In addition, there is evidence that TEI is positively related to effective coping in sports (Laborde et al., 2014). However, to our knowledge, no data exists regarding the explanatory mechanisms of athlete burnout through TEI and coping. Therefore, the current two-sample study aimed to examine the correlation between TEI, coping, and athlete burnout (Sample 1 and Sample 2), and by testing the mediation effect of coping between TEI and athlete burnout (Sample 2).

Burnout in Athletes

The definition of burnout emerged in the occupational setting (Maslach & Jackson, 1984) and was later adapted to the sports context (Raedeke, 1997). The most used conceptualization comprises three factors: emotional and physical exhaustion (i.e., perceived fatigue related to intense training and competition), reduced sense of accomplishment (i.e., the [perceived] inability to achieve goals and perform at the expected level), and sport devaluation (i.e., a loss of interest in the sport itself, such as in the quality of the performance; Raedeke, 1997). Developing burnout may have negative consequences for athletes' such as long-term performance impairment, eventual withdrawal from sports, and lower overall life satisfaction (Gustafsson et al., 2011; Nicholls et al., 2020). In addition to consequences, the

Integrated Model of Athlete Burnout (Gustafsson et al., 2011) specifies antecedences (e.g., excessive training), and influencing factors including personality traits, coping strategies, and environmental factors as causes of athlete burnout. These influencing factors can either advance or prevent burnout development and examining them may be crucial to understanding burnout prevention (Nicholls et al., 2022).

Factors Influencing Athlete Burnout

Trait Emotional Intelligence

Emotional intelligence describes the way an individual processes emotional information. It has mainly been conceptualized as an ability (i.e., a specific skill in a given situation; Mayer et al., 2008), or as a trait, describing how a person typically behaves (Petrides & Furnham, 2001). More specifically TEI refers to the way an individual appraises, expresses, regulates, and uses one's own and other's emotions (Mayer et al., 2008). In line with previous investigations on athletes, and due to its enduring positive association with mental health, we conceptualize emotional intelligence as a trait (Laborde et al., 2016). Concerning the TEI and burnout association, investigations in the occupational setting found TEI to be negatively correlated with burnout in teachers (Mérida-López & Extremera, 2017), and medical professionals (Năstasă & Fărcaş, 2015). In athletes, the findings of the only study examining this relationship revealed negative relationships between global TEI and total athlete burnout and the reduced sense of accomplishment dimension (DeFreese & Barczak, 2017). However, this work requires replication given the modest sample and pilot nature.

Coping

Lazarus and Folkman (1984) defined coping as the cognitive and behavioral patterns a person applies in response to internal or external demands perceived as potentially exceeding an individual's resources. In sports, athletes use a wide range of coping strategies to deal with

consistent physical and psychological stress. As demonstrated in a recent meta-analysis, researchers can differentiate between three types of coping strategies: problem-focused, emotion-focused, and avoidance-focused coping (Nicholls, Taylor, et al., 2016). Problem-focused coping includes strategies that aim to reduce or eliminate the stressor, such as goal setting and time management (Gould et al., 1993). Emotion-focused coping regulates emotional arousal as a consequence of the stressor (Nicholls, Taylor, et al., 2016), including functional strategies such as seeking social support, or relaxation techniques, but also dysfunctional strategies such as expressing unpleasant emotions through yelling and crying (Noorbakhsh et al., 2010). Thirdly, avoidance-focused coping reflects behavioral and psychological disengagement from the stressful situation (Nicholls, Taylor, et al., 2016) such as the denial of a problem, distraction strategies, or wishful thinking.

Previous investigations show that problem-focused coping is associated with performance satisfaction and higher well-being (Nicholls, Taylor, et al., 2016). Whereas, emotion-focused coping and avoidance-focused coping have been related to lower well-being (Nicholls, Levy, et al., 2016), and higher cognitive anxiety (Ntoumanis & Biddle, 2000). To date, four studies revealed different relationships between the three types of coping strategies and athlete burnout (Hill et al., 2010; Madigan et al., 2020; Pacewicz et al., 2018; Schellenberg et al., 2013). Avoidance-focused coping correlates positively with athlete burnout (Hill et al., 2010; Schellenberg et al., 2013), whereas problem-focused coping was negatively (Hill et al., 2010; Schellenberg et al., 2013) or not correlated (Madigan et al., 2020; Pacewicz et al., 2018) to athlete burnout. Pacewicz et al. (2018) found emotion-focused coping to be negatively correlated to a reduced sense of accomplishment. Alternatively, studies report that emotion-focused coping strategies were related to adverse mental health such as anxiety and depression (Ntoumanis & Biddle, 2000). This discrepancy may be

partially explained by the wide range of sub-categories grouped under emotion-focused coping including functional and dysfunctional strategies (Noorbakhsh et al., 2010).

The Trait Emotional Intelligence and Coping Relationship

In the past, TEI has been associated with problem-focused and avoidance-focused coping strategies in athletes (e.g., Laborde et al., 2014). In a cross-cultural study of 111 French and Chinese table tennis players, Laborde et al. (2012) found that players higher in TEI used task-oriented coping (problem-focused coping in the present study) significantly more often than players low in TEI. In contrast to that, players with lower TEI employed avoidance-focused coping significantly more often than players with higher TEI. Further, a structural equation model integrating TEI, coping strategies, performance satisfaction, and stress-related variables (e.g., perception and controllability, appraisal, coping effectiveness) provided further support for findings, as higher TEI was related to task-oriented (i.e., problem-focused) coping, whereas lower TEI was related to avoidance and disengagement (Laborde et al., 2014).

Regarding emotion-focused coping, to our knowledge no study has examined its association with TEI in athletes, and results outside the sports context have been contradictory. MacCann et al. (2011) revealed a negative link between emotion-focused coping and ability emotional intelligence among students. In contrast, O'Conner et al. (2017) found TEI to be predictive of lower negative affect and higher task performance via emotion-focused coping strategies. These contradicting results may be explained by different definitions and measurements of emotion-focused coping. In a sample of students, Noorbakhsh et al. (2010) found TEI to correlate positively with functional emotion-focused coping and negatively with dysfunctional emotion-focused coping.

Taken together, there is reason to believe, that emotionally intelligent athletes are likely to employ more problem-focused coping strategies and less avoidance-focused coping

strategies, and that, based on evidence from the non-athlete population emotionally intelligent athletes may employ more functional emotion-focused coping strategies and less dysfunctional emotion-focused strategies.

The Current Study

In sum, TEI, coping, and their interplay are important influencing factors of athlete burnout, and a greater understanding of the underlying mechanisms may play a crucial role in burnout prevention and the improvement of athletes' well-being (Nicholls et al., 2022). Although there is evidence that higher TEI and efficient coping are correlated to lower athlete burnout, research supporting this claim is limited. For example, the association between TEI and athlete burnout has not been sufficiently powered (DeFreese & Barczak, 2017), previous studies examining the relationship between TEI and coping have not considered emotion-focused coping in athletes (Laborde et al., 2014), and no data exists examining the correlations between TEI, coping, and athlete burnout concurrently in the same sample.

Consequently, the present study investigated the relationship between TEI and athlete burnout in two independent samples of athletes (Hypothesis 1: correlation between TEI and athlete burnout; Sample 1 and Sample 2). Based on previous findings in athletes (DeFreese & Barczak, 2017), we hypothesized a negative correlation between TEI and athlete burnout in the first sample. To strengthen these results (Simons, 2014), we performed correlation analysis in a second independent sample of athletes, hypothesizing to replicate the findings of Sample 1.

To further understand the interplay between TEI, coping, and athlete burnout, we tested a structural equation model (Hypothesis 2: mediation effect of coping; Sample 2) adding coping strategies as a mediating factor between TEI and athlete burnout in Sample 2 (see Figure 1). We hypothesized that higher levels of TEI are associated with more problem-focused coping and less avoidance-focused coping (Laborde et al., 2014), which can be associated to lower

levels of athlete burnout (Schellenberg et al., 2013). Regarding emotion-focused coping, findings in the literature are mixed (Noorbakhsh et al., 2010), thus the proposed model was explorative in this concern.

Insert Figure 1 here

Methods

Participants

We used Sample 1 and Sample 2 to test the relationship between TEI and athlete burnout and Sample 2 to test the relationship between TEI, athlete burnout, and coping. We assured the independence of the two samples. An a-priori G-power analysis (power level .95) indicated a minimum sample size of 142 was required for regression modeling (Faul et al., 2009).

Sample 1. Participants, who answered the first survey (i.e., TEI, athlete burnout), were 270 athletes (78% female) from English-speaking countries, including the United Kingdom, United States of America, and Australia. The mean age was 24.58 (*SD* = 9.31) and ranged from 16 – 67 years. All participants competed regularly at university to regional level in different sports (e.g., soccer, swimming, running, etc.).

Sample 2. The second survey was run independently from the first survey and additionally included the coping questionnaire. It was answered by 144 athletes (56% female) from English speaking countries, including the United Kingdom, United States of America, and Australia. Their mean age was 22.5 (*SD* = 6.54) and ranged from 16 – 46 years. All participants competed regularly in university to regional level in different kinds of sports (e.g., soccer, swimming, running, etc.).

Procedure

The study was designed and approved by a university ethics committee in England. Both samples completed an online survey via Qualtrics, which was distributed via email to

coaches from the authors' institutional networks who then forwarded the invite to other coaches. Sample 1 completed a questionnaire assessing TEI and athlete burnout, whereas Sample 2 completed a questionnaire assessing TEI, athlete burnout, and coping strategies. Informed consent was obtained from all participants before taking part. After participants completed the survey, they were thanked, debriefed, and provided contact details for further information.

Materials

TEI was measured by the Emotional Intelligence Scale (EIS; Schutte et al., 1998). The self-report questionnaire consists of 33 items scoring four subscales: 1) perception of emotion (POE; e.g. "I am aware of my emotions as I experienced them"); 2) managing personal emotion (MPE; e.g. "I seek out activities that make me happy"); 3) managing other's emotions (MOE; e.g. "I help other people feel better when they are down"); and 4) utilization of emotion (UOE; e.g. "I use good moods to help myself keep trying in the face of obstacles"). Participants indicated their agreement on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The four subscale scores were obtained by calculating their separate means. The total score was calculated by averaging the four subscale scores. Prior research has supported the psychometric properties of the EIS (e.g., two-week test-retest reliability = 0.78; Schutte et al., 1998).

Athlete burnout was assessed with the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001. This self-report questionnaire includes 15 items measuring three dimensions of burnout: 1) emotional and physical exhaustion (EPE; e.g. "I feel so tired from my training that I have trouble finding energy to do other things"); 2) reduced sense of accomplishment (RSA; e.g. "It seems that no matter what I do, I don't perform as well as I should"); and 3) sport devaluation (SD; e.g. "The effort I spend participating in my sport would be better spent doing other things"). Athletes rated how often they felt on a 5-point Likert scale anchored by

1 (almost never) to 5 (almost always). Separate means were calculated for each score. The total score was obtained by averaging the three subscale scores. Prior research provided evidence for the reliability and validity of the ABQ (e.g., convergent and discriminant validity; Cresswell & Eklund, 2006).

We assessed coping using the Modified COPE questionnaire (MCOPE; Crocker & Graham, 1995). This self-report scale consists of 48 items testing 12 factors of coping. Responses are rated on a 1 (strongly disagree) to 5 (strongly agree) Likert scale. The factors were classified into three types of coping strategies (Nicholls, Taylor, et al., 2016): problem-focused (active coping, seeking social support for instrumental reasons, planning, suppression of competing activities and increasing effort), emotion-focused coping (seeking social support for emotional reasons, humor, venting of emotion, self-blame and wishful thinking), and avoidance-focused coping (denial and behavioral disengagement). Scores for each factor were obtained by calculating the mean. Previous research supports the MCOPEs reliability and validity (e.g., $\alpha = .62$ to .92; Crocker & Graham, 1995).

Design and Analyses

The study adopted a multi-sample cross-sectional design with purposive sampling to collect a representative sample of athletes. Data analysis was completed using IBM SPSS 26. For both samples, we first cleaned the data and calculated the means of each scale. Secondly, we applied descriptive analyses to assess parametric assumptions (missing data, presence of outliers, normality).

To test the first hypothesis, we calculated two-tailed Pearson's correlation coefficients to explore the relationships between TEI and athlete burnout for the first sample and the second sample. We added coping strategies in the correlation analysis for the second sample. (Coping strategies were not assessed in Sample 1.) Additionally, we calculated four multiple regressions with simultaneous variable entry of the TEI dimensions on global athlete burnout

and its three dimensions to examine how much variance is explained by the subscale and to control for potential overlaps between predictors. To avoid Type I error accumulation, we adjusted the level of significance according to Bonferroni.

To test the second hypothesis, we conducted a path analysis using AMOS 17 to test how well the proposed model fits our data of the second sample. We used the total scores of the ABQ and the EIS here for model parsimony and to avoid issues of multicollinearity. As indicators of fit, we reported the χ^2 statistic, Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Residual (SRMR). The acceptable fit was based on CFI .90 or greater, RMSEA, and SRMR or .06 or less (Hu & Bentler, 1999). In case of an unacceptable model fit, any model modification will be guided by theoretical and empirical evidence (Byrne, 2016).

Transparency and Openness

All data, analyzing codes, and measures were cited according to the APA 7th guidelines, and are listed in the reference section. We indicated how we designed our study and detailed the procedure of data collection and manipulation process sufficiently to enable replication of all published results. All variables and their coding were provided in the text. In addition to that, the datafiles used, the analysis scripts, and the questionnaires were made available via the Open Science Framework (OSF)[1], and the unpublished manuscript was made available as a pre-print via PsyArXiv (DELETED FOR BLINDED REVIEW). The study's design and its analysis were not pre-registered. Our work did not replicate any previously published study.

Results

Missing data analysis indicated that 4.1% of the data was missing at random. Following the recommendation of Tabachnick and Fidell (2019), we replaced the missing

[1] 10.17605/OSF.IO/5VZRH

values with the mean of the respective subscale. No significant outliers were found via box plot analysis. We screened the data for normality and homogeneity. Skewness and kurtosis for all scales ranged between -1.03 and .496. Cronbach's alpha ranged from .72 to .88 in Sample 1 and from .72 to .86 in Sample 2 (see Tables 1 and 3) demonstrating satisfactory levels of internal consistency for all scales. Means, standard deviations, and bivariate correlations for Sample 1 are presented in Table 1, and presented in Table 3 for Sample 2.

Hypothesis 1 (correlation between TEI and athlete burnout)

In both samples, we found a significant negative correlation between global athlete burnout and global TEI (Sample 1: r = -.19, p = .001; Sample 2: r = -.24, p = .001). Regarding the different dimensions of the TEI, managing personal emotions was significantly negatively associated with all ABQ dimensions in Sample 1 (see Table 1) and three dimensions in Sample 2 (total athlete burnout, emotional and physical exhaustion, reduced sense of accomplishment, see Table 3). Concerning the different dimensions of the ABQ, a reduced sense of accomplishment was significantly correlated with all dimensions of the EIS in Sample 1 (see Table 1) and to all dimensions excluding the perception of emotions in Sample 2 (see Table 3). In contrast, sport devaluation was correlated significantly solely with managing personal emotions in Sample 2 (r = -.14, p = .018).

For transparency and completeness, the associations to coping strategies in Sample 2 are reported. Global TEI was positively related to problem-focused coping, and emotion-focused coping. No significant correlation was found to avoidance-focused coping. We found negative correlations between athlete burnout (global and subdimensions), problem-focused and emotion-focused strategies, and positive correlations to avoidance-focused coping (see again Table 3).

Concerning the multiple regression, a summary is shown in Table 2 and Table 4. In both samples, the data met the assumption of no collinearity, as the variance inflation factor

(VIF) for all dimensions was below 10, and the tolerance value was greater than 0.20 (Stevens, 1996). In Sample 1 analyses indicated that the dimensions of TEI predicted significant amounts of variance in global athlete burnout (R^2 = .08, p < .001) and for reduced sense of accomplishment (R^2 = .11, p < .001), which could be replicated in Sample 2 (global athlete burnout: R^2 = .12, p = .008; reduced sense of accomplishment: R^2 = .13, p < .001). Managing personal emotions negatively predicted global athlete burnout, reduced sense of accomplishment, and sport devaluation in Sample 1, and global athlete burnout, emotional and physical exhaustion, and reduced sense of accomplishment in Sample 2 (see Tables 2 and 4). No other significant predictors were found.

Hypothesis 2 (mediation effect of coping)

To test the second hypothesis, we examined the overall fit of the hypothesized model (see Figure 1). We found insufficient fit to the data for the initial model fit test: $\chi^2(4)$ = 37.522, p < .001; CFI = .843; RMSEA = .242; SRMR = .111. We modified our model based on modification indices provided by AMOS (Byrne, 2016) and previous work (Laborde et al., 2014; Ntoumanis & Biddle, 2000; Pacewicz et al., 2018). First, our initial model did not show any significant direct path from TEI to avoidance-focused coping (*ß* =-.105*; p* = .205). In accordance with previous models showing similar results (MacCann et al., 2011), we deleted the direct path from TEI to avoidance-focused coping. Second, we included a path from emotion-focused to problem-focused coping. The rationale for this is threefold; a) our bivariate correlations suggest overlap between problem-focused and emotion-focused coping (r = .51, p < 0.01) whereas problem-focused and avoidance-focused coping (r = -.11, p > 0.05) are distinct; b) previous research suggests that problem-focused and emotion-focused coping work reciprocally to handle stress (e.g., emotion-focused coping strategies reduce emotional intensity associated with the stressor and problem-focused strategies can assist in changing the stressful event; Poulus et al., 2022); and c) appropriate emotional states favors

the process of finding and engaging in problem-focused coping strategies (Fredrickson, 2001; Gustafsson et al., 2013).

That is, integrating a second-order structure is appropriate, as by definition emotion-focused coping is closer linked to TEI. After this modification, our model did not show any significant direct path from TEI to problem-focused coping (*ß* = -.126; *p* = .167). That accords with models of previous studies, where no direct links, but only indirect links through threat-challenge-appraisal and perceived controllability were found between TEI and problem-focused coping (Laborde et al., 2014). We therefore deleted the direct path from TEI to problem-focused coping. Furthermore, the modified model did not show a significant path from emotion-focused coping to athlete burnout (*ß* = -.120; *p* = .076). As research on emotion-focused coping is underrepresented in sports (Madigan et al., 2020) and previous results concerning the association between emotion-focused coping and athlete burnout are inconsistent (Ntoumanis & Biddle, 2000; Pacewicz et al., 2018), we deleted the path from emotion-focused coping to athlete burnout. Final indices of the accepted model fit are: $\chi^2(6) = 7.712$, *p* = .260; CFI = .992; RMSEA = .045; SRMR = .063 (see Figure 2).

Insert Figure 2 here

Discussion

The present study aimed to investigate the association of two influencing factors of athlete burnout, namely TEI, and coping, and their interplay to contribute to understanding burnout prevention and the improvement of athletes' well-being (Nicholls et al., 2022).

Firstly, we showed a negative correlation between TEI and athlete burnout across two athlete samples, which provides an examination of the relationship with replication and supports previous research outside (Mérida-López & Extremera, 2017) and in the sports context (DeFreese & Barczak, 2017) and thus our hypothesis. Specifically, our regression analyses showed that TEI negatively predicts the burnout dimension "reduced sense of

accomplishment" with medium effect sizes (Cohen, 1977). This aligns with existing research in the occupational setting showing a negative correlation between TEI and different burnout dimensions. However, in contrast to our findings, this research found exhaustion (but not a reduced sense of accomplishment) to be negatively predicted by TEI (Cohen & Abedallah, 2015). We suggest that in contrast to non-athletes, athletes frequently experience physical and emotional exhaustion regardless of their level of TEI (e.g., frequent physically intensive training sessions; Smith, 2003), which are not impacted by the athletes' TEI. In contrast, in the occupational setting physical and emotional exhaustion may depend more on the perception of the respective stressor, and thus on the person's TEI (Cohen & Abedallah, 2015).

Regarding the different dimensions of TEI, we found that athletes who can manage their own emotions are less emotionally and physically exhausted, and show less reduced sense of accomplishment and sport devaluation. This supports previous findings showing that individuals who can manage their own emotions more effectively are less likely to show burnout symptoms (Cohen & Abedallah, 2015). One possible explanation may be athletes' ability to down-regulate negative emotions such as anxiety (Lemyre et al., 2006). On the other hand, the ability to up-regulate positive emotions could play a more important protective role against burnout symptoms (Gustafsson et al., 2013). In this, positive affect was linked to lower levels of psychophysiological stress (i.e., cortisol; Steptoe et al., 2005), and was shown to be protective against depression (Fredrickson et al., 2003). Both are linked to athlete burnout, as psychophysiological stress is presumed to be salient in the development of athlete burnout (Gustafsson et al., 2011), and depression symptoms have been reported as consequences of athlete burnout (Gustafsson et al., 2017). In addition, a recent investigation highlighted the potential of positive emotions to speed up psychophysiological regeneration

in athletes (Lautenbach & Zajonz, 2023), which may prevent them from long-term burnout (Kallus & Kellmann, 2000).

Concerning the correlations between coping and TEI, our findings support previous research (Laborde et al., 2014), that problem-focused coping positively correlates with global TEI, whereas in contrast to previous findings (Laborde et al., 2012) avoidance-focused coping was not negatively correlated to TEI in our sample. Past results have shown that avoidance-focused coping was negatively linked to TEI because athletes with lower TEI perceived less control over a stressful situation and thus disengaged quickly from the situation to avoid setbacks (Laborde et al., 2014). Thus, including perceived controllability as a mediator in future studies may contribute to a better understanding of the association between TEI and coping.

Regarding the association between coping and athlete burnout, our findings are in line with previous investigations showing a negative correlation between problem-focused coping and burnout, and a positive correlation between avoidance-focused coping and burnout (Schellenberg et al., 2013). Further, for emotion-focused coping, we showed a positive correlation with TEI and a negative correlation with athlete burnout. We assume that athletes with higher TEI use more functional emotion-focused strategies, which were shown to have positive effects (Noorbakhsh et al., 2010). In the present case, this may help athletes actively facing stressful events to plan and increase effort, which in turn decreases the risk of developing burnout symptoms (Hill et al., 2010).

The second aim of the present study was to test a structural equation model hypothesizing that higher TEI decreases athlete burnout through the path of problem-focused coping strategies and that lower TEI increases burnout symptoms through the path of avoidance coping. The initial model indicated poor fit to the data, but after modification (based on our correlational results, modification indices, and theoretical rationale; O'Connor

et al., 2017; Poulus et al., 2022) we proposed a model with an acceptable fit highlighting the influence of TEI on athlete burnout via the link of emotion-focused coping with problem-focused coping. Based on theoretical and empirical evidence, we included a positive link from emotion-focused coping to problem-focused coping, which in turn decreased athlete burnout as initially proposed (Hill et al., 2010; Schellenberg et al., 2013). These results are in line with O'Connor et al. (2017), who revealed that TEI predicts positive coping outcomes (e.g., high task performance and low negative affect) via emotion-focused strategies. The authors argued that individuals higher in TEI regulate their emotions successfully when confronted with a stressor, which helps them select functional coping strategies. Similarly, Poulus et al., (2022) showed that elite esports players use problem-focused coping and emotion-focused coping reciprocally to handle stress.

In addition, we removed the direct path from TEI to problem-focused coping and avoidance-focused. Although previous research suggested a positive correlation between problem-focused coping and TEI, and a negative correlation between avoidance-focused coping and TEI (Laborde et al., 2012), other research suggested an indirect relationship (Laborde et al., 2014), or an insignificant association between different dimensions of EI and avoidance coping (MacCann et al., 2011). Thus, we suggest that no type of coping strategy on its own mediates the link between TEI and athlete burnout to prevent athlete burnout. Instead, athletes higher in TEI may manage their own emotions effectively by engaging in adaptive emotion-focused coping (e.g., seeking social support, relaxation techniques, DeFreese & Smith, 2013), which may enable them to actively face the situation by planning or seeking instrumental support.

In addition to the successful down-regulation of stress (O’Conner et al., 2017), the process from emotion-focused coping to problem-focused coping can also be linked to the successful up-regulation of positive emotions (Fredrickson, 2001; Gustafsson et al., 2013). In

this regard, Fredrickson's broaden-and-build theory (2001) states that experiencing positive emotions broadens thoughts and actions, and consequently increases behavioral flexibility, which may lead to appropriate solutions and active strategies. For example, an athlete who repeatedly faces setbacks and injuries, but who can up-regulate positive emotions by using appropriate relaxation techniques for example, may find solutions to overcome these obstacles, which makes them more resilient against upcoming stressors, thus preventing burnout symptoms (Fredrickson, 2001). In addition, the paths from emotion-focused coping to problem-focused coping to athlete burnout are supported by the work of Gustafsson et al. (2013), which highlighted the negative association between hope and athlete burnout (mediated by positive affect). They defined hope as an emotional state in which people engage and pursue goals. Thereby, emotionally intelligent athletes, who use emotion-focused strategies to bring themselves into an optimal emotional state (such as hope) may be more motivated to take concrete actions to handle stressors (problem-focused strategies), which prevent burnout symptoms.

Our results highlight the potential to positively impact athletes' well-being by reducing burnout. Previous theoretical (Madigan et al., 2020) and longitudinal evidence (Nicholls et al., 2022) have highlighted the negative link between athlete burnout and well-being due to the high levels of stress experienced by athletes with burnout symptoms (Nicholls et al., 2022). Taken together with our results, higher TEI may enable athletes to regulate their stress through emotion-focused coping and problem-focused coping, which work in tandem to reduce athlete burnout, and in turn, improve athletes' well-being. Future work should investigate this line of thinking.

Limitations

Despite strengths such as the two samples reported, providing replication and extension, the present study has some limitations. First, we acknowledge that although having

a statistical and theoretical rationale for the post-hoc adjustment, the revised model should be tested in future samples of athletes. Moreover, the cross-sectional design limits causality and direction. Future research should look to examine the hypothesized model longitudinally, like Madigan et al. (2020). Examining change scores in models would enable researchers to determine direction and assume causality of effects whilst also gaining greater precision of mediation effects (Pek & Hoyle, 2016).

Likewise, self-report measures may be subject to biases. Other measures should be added to test the stability of findings. For example, recent research suggests that scales other than the EIS may be better at capturing TEI in sports (Vaughan & Laborde, 2018). Although adequately powered in the current research, larger sample sizes would allow researchers to test models with greater confidence and examine the subdimensions of TEI, coping, and burnout concurrently. In addition, athletes of both samples reported only a few symptoms of athlete burnout. It should be noted that some researchers estimate that high levels of athlete burnout represent between 1-2% of the data in the burnout literature thus in line with the current research (Gustafsson et al., 2017). Moreover, the lack of diagnostic measurement in the burnout literature is commonplace since no predefined cut-off values exist. As the aim of the current study was not to diagnose athletes with burnout as a health problem, but rather to associate athlete burnout with other concepts, the ABQ can be seen as an appropriate measure here (Gustafsson et al., 2017). However, different results may be gained for athletes already suffering from burnout, thus it could be worthwhile to compare diagnosed with non-diagnosed athletes in future studies.

Future Recommendations and Implications

Our findings give new insight into the association between TEI, coping, and athlete burnout and lay the foundation for subsequent research and practice focusing on burnout prevention and improving athletes' well-being (Nicholls et al., 2022). However, more

research is needed on this topic. Considering the role of managing own emotions in preventing athlete burnout, a deeper understanding of the emotion regulation used in athletes is needed. Differentiating between the target emotions (i.e., negative or positive) could contribute to a better understanding of the link between TEI and athlete burnout, as well as between TEI and coping strategies. Given their important role in burnout prevention (Fredrickson, 2001; Gustafsson et al., 2013), future studies should target positive emotions through the evaluation of specific strategies or interventions (Zajonz et al., 2020). In addition, the potential of positive emotions to aid athletes' psychophysiological recovery should be further explored as it may contribute to lasting burnout prevention and well-being maintenance in athletes (Lautenbach & Zajonz, 2023).

Moreover, to further explain the link between TEI, emotion-focused coping, and problem-focused coping, a more detailed understanding of emotion-focused coping and its different subcategories is needed. To date, literature is inconsistent regarding the functional value of emotion-focused coping (Ntoumanis & Biddle, 2000; Pacewicz et al., 2018). No research exists to propose a clear categorization. In line with Nicholls, Taylor, et al. (2016), we encourage future research to examine a more accurate classification of coping strategies in a larger sample of athletes. This would avoid overlaps and ambiguities and enhance comparability between studies.

In addition, including variables such as stress appraisal and perceived controllability of the situation in the model would contribute to a better understanding of the findings (Laborde et al., 2014). Stress appraisals describe the way an individual interprets the environment regarding perceived intensity, controllability, and relational meaning (Lazarus & Folkman, 1984). It therefore reflects whether a stressor is perceived as a challenge or as a threat and plays a crucial role in the relationship between stress, coping, and emotions. For example, the perceived controllability of the situation may determine the effectiveness of

problem-focused and emotion-focused coping. Problem-focused coping may be more effective in situations that athletes can control, whereas emotion-focused coping is proposed to be more effective if athletes are not in control of the situation (Nicholls & Polman, 2007). Thus, assessing and manipulating stress appraisal and controllability in future experimental investigations would enhance understanding of this association.

Regarding practical implications, the present research highlights the importance of improving TEI and effective coping for athletes' well-being. There is evidence that TEI can be trained (Hodzic et al., 2018). Appropriate emotional intelligence training for athletes lasts at least three hours and includes both theory about emotional competencies (i.e., identification, expression, understanding, regulation, and using of own and others' emotions), such as practice with concrete exercises (Campo et al., 2019; see Laborde et al., 2020 for an overview for exercises). Based on our results, emotional intelligence training could optimize the choice of coping strategies and consequently prevent athletes from developing burnout. In addition, especially, learning how to down-regulate negative emotions (i.e., through attentional deployment or cognitive reappraisal) may help athletes to be less likely to experience symptoms of burnout (Lemyre et al., 2006). Moreover, training athletes how to up-regulate positive emotions may offset athlete burnout development (Gustafsson et al., 2013). Specifically, intervention to up-regulate positive emotions can be used for regeneration (Lautenbach & Zajonz, 2023), and to broaden attention to find appropriate coping strategies and new solutions (Fredrickson, 2001). Therefore, we recommend the use of short-term interventions such as positive imagery, gratitude exercises, or the intended use of happy music, which can be easily implemented in athletes' daily training routines (Zajonz et al., 2023).

Conclusion

The current research aimed to examine the relationship between TEI, coping strategies, and athlete burnout to gain a greater understanding of burnout development. We demonstrated a negative correlation between TEI and athlete burnout in two samples providing a robust exploration of their association in sport, and showed that problem-focused coping and emotion-focused coping were both positively correlated to TEI and negatively correlated to athlete burnout. In addition, we provided an explanatory model, which assumed that the interplay of emotion-focused and problem-focused coping mediate TEI and athlete burnout. Athletes higher in TEI may use more functional emotion-focused coping strategies, which enable them to use problem-focused coping strategies, so that burnout symptoms are decreased. These findings highlight the importance of emotion-focused coping and its interplay with problem-focused coping, and athlete burnout, which are indeed complex and warrant further investigation to better help athletes and inform future intervention work.

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Table 1

Descriptive statistics, internal consistency, and bivariate correlations between athlete burnout and trait emotional intelligence (TEI) in Sample 1

	Mean	SD	α	ABQ	EPE	RSA	SD	EIS	POE	MPE	MOE	UOE
ABQ	2.48	.67	.86	-								
EPE	2.20	.81	.86	.68**	-							
RSA	2.74	.82	.76	.79**	.23**	-						
SD	2.49	.92	.80	.87**	.38**	.63**	-					
EIS	3.71	.46	.88	-.19**	-.13**	-.26**	-.07*	-				
POE	3.72	.44	.78	-.07**	-.05**	-.12**	.00*	.83**	-			
MPE	3.76	.60	.76	-.26**	-.17**	-.30**	-.14*	.81**	.48**	-		
MOE	3.60	.62	.72	-.17**	-.12**	-.24**	-.04*	.76**	.54**	.47**	-	
UOE	3.76	.52	.74	-.11**	-.09**	-.16**	-.02*	.76**	.49**	.59**	.46**	-

Note. N = 270; * p < 0,05 (two-tailed), **p < 0,01 (two-tailed); ABQ = Athlete Burnout Questionnaire (total score), EPE = emotional and physical exhaustion, RSA = reduced sense of accomplishment, SD = sport devaluation; EIS = Emotional Intelligence Scale (total score), POE = perception of emotions, MPE = managing personal emotions, MOE = managing other's emotions, UOE = utilization of emotions.

Table 2

Summary of multiple linear regression of trait emotional intelligence (TEI) dimensions on athlete burnout in Sample 1

Model	ABQ		EPE		RSA		SD	
R^2	.08**		.03		.11**		.03	
	β	Partial	β	Partial	β	Partial	β	Partial
POE	.10*	.12	.07	.05	.08*	.05	.07*	.06
MPE	-.29**	.13	-.17	.06	-.29**	.05	-.21**	.06
MOE	-.11**	.17	-.09*	.07	-.17**	.07	-.02**	.08
UOE	.06**	.22	.02*	.09	.05*	.09	.08*	.11

Note. N = 270; * $p < .05$; ** $p < .01$; Partial = partial correlation coefficient according to Cohen (1977); ABQ = Athlete Burnout Questionnaire (total score), EPE = emotional and physical exhaustion, RSA = reduced sense of accomplishment, SD = sport devaluation; POE = perception of emotions, MPE = managing personal emotions, MOE = managing other's emotions, UOE = utilization of emotions.

Table 3

Descriptive statistics, and bivariate correlations between athlete burnout, trait emotional intelligence (TEI) and coping strategies in Sample 2

	Mean	SD	α	ABQ	EPE	RSA	SD	EIS	POE	MPE	MOE	UOE	PFC	EFC
ABQ	2.44	.59	.85	-										
EPE	2.25	.75	.86	.63**	-									
RSA	2.60	.76	.76	.80**	.21**	-								
SD	2.49	.84	.80	.84**	.27**	.60**	-							
EIS	3.72	.44	.79	-.24**	-.15**	-.30**	-.11**	-						
POE	3.74	.56	.72	-.10**	-.03**	-.12**	-.09**	.78**	-					
MPE	3.68	.60	.73	-.31**	-.22**	-.35**	-.16**	.84**	.45**	-				
MOE	3.75	.51	.74	-.19**	-.14**	-.25**	-.06**	.73**	.45**	.48**	-			
UOE	3.72	.58	.75	-.12**	-.08**	-.2**	-.01**	.76**	.42**	.65**	.42**	-		
PFC	3.74	1.27	.84	-.66**	-.43**	-.54**	-.54**	.24**	.11**	.32**	.15**	.14	-	
EFC	3.15	1.11	.78	-.44**	-.35**	-.33**	-.33**	.62**	.48**	.60**	.42**	.42	.51**	-
AFC	3.26	.89	.75	.34**	.15**	.32**	.30**	-.11**	-.12**	-.01**	-.14**	-.06	-.11**	-.11

Note. $N = 144$; * $p < 0.05$ (two-tailed), ** $p < 0.01$ (two-tailed); ABQ = Athlete Burnout Questionnaire (total score), EPE = emotional and physical exhaustion, RSA = reduced sense of accomplishment, SD = sport devaluation; EIS = Emotional Intelligence Scale (total score), POE = perception of emotions, MPE = managing personal emotions, MOE = managing other's emotions, UOE = utilization of emotions; PFC = problem-focused coping, EFC = emotion-focused coping, AFC = avoidance-focused coping.

Table 4

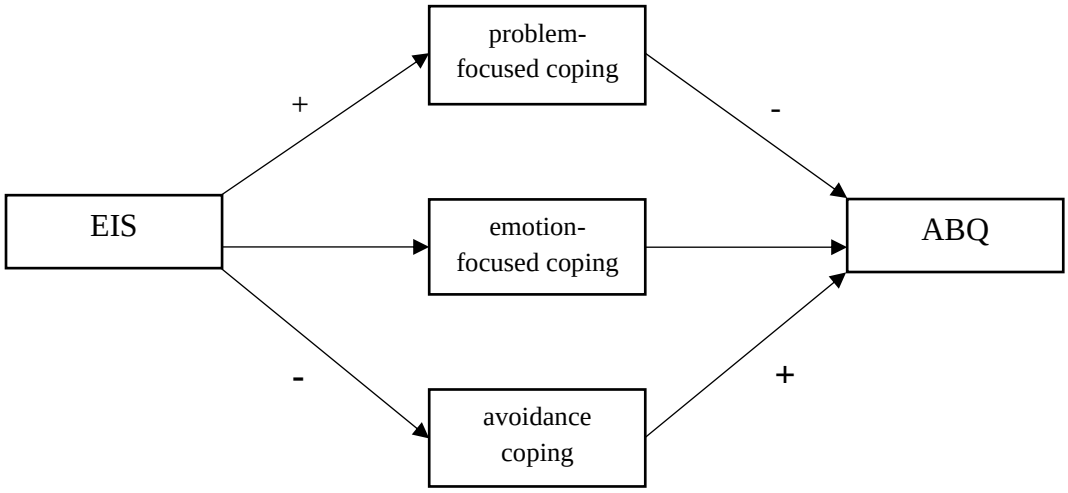
Summary of multiple linear regression of trait emotional intelligence (TEI) dimensions on athlete burnout in Sample 2

Model	ABQ		EPE		RSA		SD	
R^2	.12*		.06		.11**		.05	
	β	Partial	β	Partial	β	Partial	β	Partial
POE	.05*	.05	.09	.07	.08*	.06	-.05*	.07
MPE	-.39**	.06	-.29*	.08	-.33**	.08	-.27*	.09
MOE	-.09**	.07	-.08*	.09	-.09**	.09	.01**	.10
UOE	.15**	.09	.11*	.12	.12*	.12	.20*	.13

Note. N = 144; * $p < .05$; ** $p < .01$; Partial = partial correlation coefficient according to Cohen (1977); ABQ = Athlete Burnout Questionnaire (total score), EPE = emotional and physical exhaustion, RSA = reduced sense of accomplishment, SD = sport devaluation; POE = perception of emotions, MPE = managing personal emotions, MOE = managing other's emotions, UOE = utilization of emotions.

Figure 1

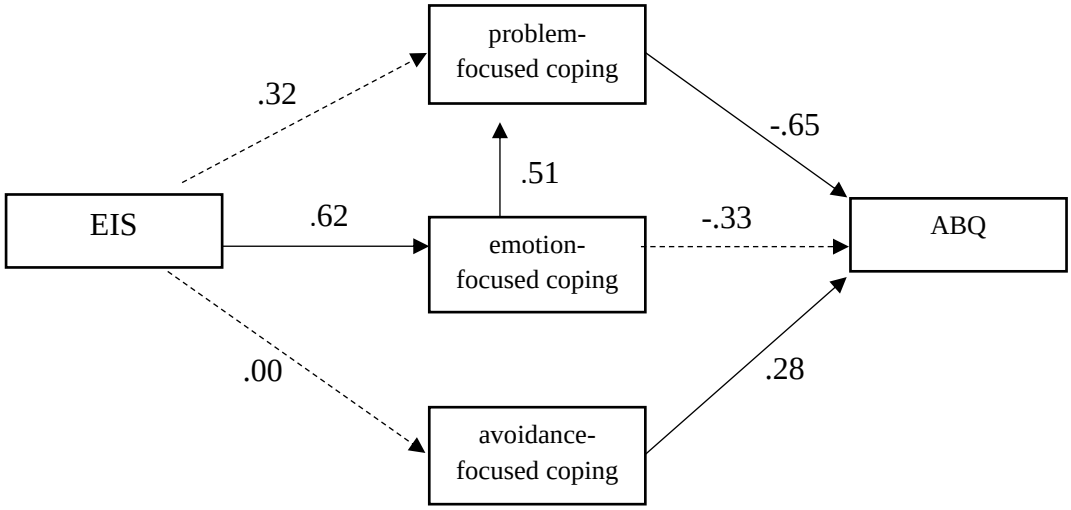
Hypothesized model of the relationship between trait emotional intelligence (TEI), coping strategies, and athlete burnout



Note. EIS = Emotional Intelligence Scale (total score); ABQ = Athlete Burnout Questionnaire (total score).

Figure 2

Final model of the relationship between trait emotional intelligence (TEI), coping strategies, and athlete burnout



Note. EIS = Emotional Intelligence Scale (total score); ABQ = Athlete Burnout Questionnaire (total score); Standardized regression weights are indicated. Solid lines display significant regression weight direct effects ($p < .01$). Dashed lines display non-significant regression weight indirect effects ($p > .05$).