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Examining the relationships between challenge and threat cognitive appraisals and coaching behaviours in football coaches

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ABSTRACT

Previous research demonstrates that sports coaching is a stressful activity. This article investigates coaches' challenge and threat cognitive appraisals of stressful situations and their impact on coaching behaviour, using Blascovich and Mendes' (2000) biopsychosocial model as a theoretical framework. A cross-sectional correlational design was utilised to examine the relationships between irrational beliefs (*Shortened general attitude and belief scale*), challenge and threat appraisals (*Appraisal of life events scale*), and coaching behaviours (*Leadership scale for sports*) of 105 professional football academy coaches. Findings reveal significant positive associations between challenge appraisals and social support, and between threat appraisals and autocratic behaviour, and a significant negative association between threat appraisals and positive feedback. Results also show that higher irrational beliefs are associated with greater threat, and lesser challenge cognitive appraisals. However, no associations were revealed between irrational beliefs and challenge cognitive appraisals. Additionally, findings demonstrate a positive relationship between age and training and instruction. Results suggest that practitioners should help coaches to appraise stressful situations as a challenge to promote positive coaching behaviours.

Introduction

Coaching is considered to be a stressful occupation (Gould, Guinan, Greenleaf, & Chung, 2002). Research has identified 182 distinct stressors amongst elite coaches (Thelwell, Weston, Greenlees, & Hutchings, 2008), with 1 investigation revealing a wide range of stressors related to conflict, pressure, isolation, athlete concerns, the competition environment, and competition preparation (Olusoga, Butt, Hays, & Maynard, 2009). Coaching stress could even result in coaches dropping out of the profession (Frey, 2007). Indeed, 1 investigation revealed moderate to high levels of burnout amongst 261 collegiate tennis coaches (Kelley, Eklund, & Ritter-Taylor, 1999). The notion that sports coaches are subject to a vast array of stressors which can damage performance and psychological well-being warrants further exploration.

Extant research details the potential antecedents of coaching stress. For example, Thelwell et al. (2008) revealed that coaching stress emanates from performance aspects (divided into coaches' own performance and that of their athletes) and organisational (environmental, leadership, personal, and team) factors. However, research examining how stress can influence coaching behaviour is sparse. Some evidence indicates that stress can deplete coaches' psychological resources, restricting their ability to attune to their athletes' thoughts and feelings, damaging the coach–athlete relationship (Mageau & Vallerand, 2003). Moreover, research illustrates that coaches

who are highly stressed by competition rate themselves as significantly less warm-hearted than their low-stressed colleagues (Kellmann & Kallus, 1994). Similarly, coaches reporting high levels of stress experience more burnout and a need to distance themselves from others (Kelley et al., 1999). One coach in Frey's (2007) study revealed that when she experiences stress, her unapproachable manner could cause her athletes to avoid her and refrain from discussing any issues. Therefore, coaches' stress can impact athletes, leading to detriments in coach satisfaction and performance accomplishments (Jowett & Cockerill, 2003).

Past research has considered stress as a unidirectional construct where high stress is deleterious, and low stress beneficial. However, stress can be perceived positively and used constructively by coaches. Frey (2007) found that coaches could actually respond to stress positively through enhanced focus and motivation. Stress theory has recognised the multidimensional nature of stress, considering stress to be transactional and largely dependent on individual perception. Lazarus and Folkman's (1984) model of psychological stress suggests that individuals are constantly evaluating the events they encounter, and that these evaluations involve primary and secondary cognitive appraisals. Primary appraisals are needed for the identification and evaluation of the event. Irrational beliefs, particularly beliefs that reflect demands (e.g., "I must succeed"), are considered an important part of primary appraisal (Hyland, Shevlin, Adamson, & Boduszek, 2014). Irrational

beliefs are rigid, extreme, and illogical beliefs that are associated with greater stress and anxiety (e.g., Turner, 2016), thought to be organised like evaluative schemas (e.g., DiGiuseppe, 1996). Therefore, irrational beliefs about performance may distort the primary appraisal process (David, 2003; David, Lynn, & Ellis, 2010). Secondary appraisals are seen as the assessment of resources used to cope with the perceived situation. Therefore, if insufficient resources are perceived in a given situation, a maladaptive stress response (threat) is elicited. In contrast, if sufficient resources are perceived, an adaptive stress response (challenge) is elicited. In more contemporary challenge and threat theory, Blascovich and Mendes (2000) biopsychosocial (BPS) model considers challenge as an adaptive approach to a motivated situation (e.g., personally relevant situation such as a competition or interview), whereas threat is described as a maladaptive approach to a motivated situation.

In challenge and threat theory, the cognitive appraisal process is the central mediator of challenge and threat, and the BPS model distinguishes both demand and resource appraisals as part of this process. The demand appraisals consist of perception of danger, uncertainty, and required effort. For example, the coach's team may be losing to a less regarded opponent (danger to self-esteem), the coach is unsure how this may impact their job security (uncertainty), and they believe it will take significant resources to succeed (effort). The resource appraisals relate to how the individual copes with the demands and include skills, knowledge, and dispositional factors (e.g., self-esteem, sense of control, personality traits). For example, a coach is more likely to experience challenge if they recall previous games in which they have won from a losing position (skill and experiences), have confidence in their tactical understanding (knowledge), and they generally see stressors as a challenge. Challenge and threat theory provides a more accurate way to examine coaching stress, allowing stress to be assessed as a multidimensional construct, rather than a unidirectional construct, in line with contemporary theory and research (Jones, Meijen, McCarthy, & Sheffield, 2009).

The present study contributes to the extant research in a number of ways. First, this study explores the relationships between challenge and threat, and coaching behaviour, as little past research has investigated the behavioural consequences of challenge and threat. Theory suggests that threat is associated with avoidance goals, which orient the individual away from undesired situations (Blascovich, 2014). One study showed that during a social interaction task, threat resulted in greater freezing, avoidance posture, and less smiling (Mendes, Blascovich, Hunter, Lickel, & Jost, 2007). Research in sport also indicates that challenge is related to superior performance compared to threat (e.g., Moore, Vine, Wilson, & Freeman, 2012; Turner, Jones, Sheffield, & Cross, 2012), but no research has examined a coach sample. In addition, while some studies have examined the role of irrational beliefs in cognitive appraisal (e.g., David, Schnur, & Belloiu, 2002), research has not explored the associations between irrational beliefs, and challenge and threat, with sport literature yet to consider irrational beliefs alongside challenge and threat cognitive appraisals.

Literature indicates that coaching is a stressful activity which can negatively affect coaches' behaviour and relationships with their athletes. However, while research findings have identified the causal components of coach stress, there is a dearth of research examining the multidimensional nature of stress, and the notion that stress can be both adaptive and maladaptive (Fletcher & Scott, 2010). The primary aim of the present study was to examine the relationships between challenge and threat cognitive appraisals and coaching behaviour in relation to a particularly stressful recent coaching event. The secondary aim was to examine the influence of irrational beliefs on coaches' challenge and threat cognitive appraisals.

Based on theory (Blascovich, 2014) and past research (e.g., Mendes et al., 2007) it was hypothesised that challenge cognitive appraisals would be positively related to positive coaching behaviours, and negatively related to negative coaching behaviours. In parallel, it was hypothesised that threat cognitive appraisals would be negatively related to positive coaching behaviours, and positively related to negative coaching behaviours. Finally, based on irrational beliefs research (Hyland et al., 2014) and theory (DiGiuseppe, 1996), it was hypothesised that higher irrational beliefs would be associated with greater threat, and lesser challenge.

Method

Participants

Participants were 105 soccer coaches with an age range of 19–66 years (Mage = 33.19, SD = 10.27). To ensure an appropriate level of coaching knowledge and experience, all coaches held a minimum level of qualification of the Football Association (FA) level 2 award in football coaching (The Football Association, 2016), and coached at the academy level in the United Kingdom. Academies are youth development programmes associated to elite professional clubs for players between 9 and 18 years (Cushion & Jones, 2006). Participants were recruited at training events organised by the national governing body and via email communications to academy managers and directors of coaching at the UK football academies. Institutional ethical approval was obtained and all participants completed informed consent before data collection.

Measures

Shortened general attitude and belief scale (SGABS)

The shortened general attitude and belief scale (SGABS) (Lindner, Kirkby, Wertheim, & Birch, 1999) comprises 26 items forming 2 main subscales; total irrationality (22 items) and rationality (4 items). Participants were asked to indicate the extent that they agreed with each of the 26 statements on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicative of stronger beliefs. The SGABS has shown high test–retest reliability (r = .91; Lindner et al., 1999), and acceptable construct, concurrent, convergent, and discriminate validity (MacInnes, 2003). The SGABS was selected due to its previous use in sport settings (e.g., Turner & Barker, 2013). Given the focus of the current study on irrational beliefs, only the total irrational beliefs subscale was

used. Cronbach's α for total irrational beliefs in the current sample was $\alpha = .94$.

Appraisal of life events scale (ALE-scale)

The appraisal of life events scale (ALE-scale) (Ferguson, Matthews, & Cox, 1999), comprises 16 adjectives which participants were asked to rate in relation to their perceptions of their most stressful coaching experience (which the participants described in qualitative form) within the last month on a 6-point Likert scale from 0 (*not at all*) to 5 (*very much so*). Mean scores of the sums of specific items were used to determine challenge and threat. Cronbach's α for the ALE-scale in the current sample were $\alpha = .85$ for challenge, and $\alpha = .85$ for threat.

Leadership scale for sports (LSS)

The leadership scale for sports (LSS) (Chelladurai & Saleh, 1980) was employed to operationalise coaching behaviour through coaches' self-perception (Sullivan, Paquette, Holt, & Bloom, 2012). The LSS assesses the leadership behaviours of coaches, and comprises 40 items that are scored on a 5-point scale from 1 (*never*) to 5 (*always*). Each item was prefaced with the words "As a coach, I …" to orient the coaches towards completing the questions in relation to their own coaching. The LSS has 5 subscales (Chelladurai & Saleh, 1980); training and instruction (coaching behaviours aimed at improving performance), democratic behaviour (allowing athletes to participate in decision-making processes), autocratic behaviour (coach makes decisions independently as an authority figure), social support (concern for the welfare of athletes, generating a positive group atmosphere), and positive feedback (behaviours that reinforce an athlete by recognising and rewarding good performance). Past research indicates that the LSS has adequate psychometric properties, with the results of analyses supporting the validity and reliability of the measure (cf. Chelladurai, 1993; Chelladurai & Riemer, 1998). Cronbach's α for the LSS subscales in the current sample were $\alpha = .79$ for training and instruction, $\alpha = .83$ for democratic behaviour, $\alpha = .66$ for autocratic behaviour, $\alpha = .79$ for social support, and $\alpha = .68$ for positive feedback. The relatively low α for autocratic behaviour has also been found in past research (Wałach-Biśta, 2013).

Design

The current study adopted a cross-sectional correlational design to examine the relationships between irrational beliefs, challenge and threat appraisals, and coaching behaviours.

Procedure

An online survey was developed using Qualtrics. The survey required participants to complete the 3 measures, which took 14.08 min ($SD = 9.85$) to complete on average. Participants were informed that by completing the survey they would be entered into a prize draw to win £250.

Analytic strategy

Data were first examined for missing data. Little's MCAR test revealed that 7 participants' irrational beliefs data and 3 participants' LSS data were missing at random, $X^2 = 56.85$, $df = 44$, $P > .05$, and therefore expectation maximisation (EM) was used to estimate the missing values, providing a complete data set for main analyses. Then data were screened for outliers and examined for normality to ensure data met the necessary assumptions for parametric testing within SPSS. Shapiro–Wilks tests were performed and if the presence of significant ($P < .05$) outliers were indicated then z scores for significant outliers were assessed. Datapoints with z scores greater than 2 were windsorised (Smith, 2011).

Main data analyses were completed in 3 stages. First, data were coded based on the qualitative responses to the open-ended element of the ALE-scale. Specifically, in relation to the participant's most stressful experience within the last month, themes were constructed that reflected common experiences. Four themes emerged; interpersonal stressors ($N = 32$), organisational stressors ($N = 12$), performance stressors ($N = 35$), and uncertainty ($N = 21$). Examples of each theme can be found in Table 1.

Second, to assess the relationships between challenge, threat, irrational beliefs, and LSS subscales, bivariate correlation analyses were conducted. Third, to examine the relationships between challenge and threat appraisals, and LSS subscales, 5 separate hierarchical regression analyses were conducted. Multiple regression analyses allow for multiple predictors of each LSS subscale, including age, irrational beliefs, and challenge and threat appraisal, offering a more sophisticated examination of relationships in the data. Research indicates that coaching experience is related to

Table 1. Categories and codes of coaches' stressful events with frequency in parentheses.

Categories	Codes
Interpersonal stress (32)	Player selection (1)
	Player behaviour/attitude (15)
	Parents (6)
	Conflict with other coaches (1)
	Player fearing injury (1)
	Challenging group (7)
	Player emotions (1)
Organisational stress (12)	From management (1)
	Logistics (2)
	Financial (1)
	Colleague incompetence (1)
	Administration (2)
	Lack of support (3)
	Time pressure (2)
Performance pressure (35)	Player performance (3)
	Coach performance (8)
	Game strategy (1)
	Assessment/observation (13)
	Results (4)
	Level of competition (2)
	Player injury (2)
	Apprehension before game (1)
	Impact of personal issues (1)
Uncertainty (21)	Time pressures (4)
	Training environment (8)
	Unforeseen circumstances (6)
	Officials (2)
	Player injury (1)

Table 2. Means ± SD and Pearson's correlation coefficients (r) for all self-report variables.

Variable	M ± SD	Correlation coefficients							
		1	2	3	4	5	6	7	8
Total irrational beliefs	2.23 ± .68	–	.36**	.17	.15	−.17	.03	.16	.10
Threat	1.31 ± 1.01	.36**	–	.21*	.06	−.13	.25**	.08	−.12
Challenge	1.83 ± 1.19	.17	.21*	-	.14	.02	.16	.29**	.19*
Training and instruction	3.22 ± .53	.15	.06	.14	-	−.13	.46**	.22*	.25*
Democratic behaviour	3.74 ± .58	−.17	−.13	.02	−.13	–	−.24*	.14	.36**
Autocratic behaviour	1.86 ± .56	.03	.25**	.16	.46**	−.24*	-	.02	−.01
Social support	2.86 ± .69	.16	.08	.29**	.22*	.14	.02	–	.41**
Positive feedback	4.04 ± .56	.10	−.12	.19*	.24*	.36**	−.01	.41**	-

** $P < .001$, * $P < .05$.

greater coaching efficacy (Feltz, Chase, Moritz, & Sullivan, 1999), and that irrational beliefs are important in the cognitive appraisal process that underpins challenge and threat states (e.g., David, 2003). Therefore, it was important to account for the effects of age, and irrational beliefs on the proportion of variance explained by challenge and threat appraisals. Therefore, each regression analysis included age entered at step 1, total irrational beliefs entered at step 2, and challenge and threat entered at step 3, predicting each of the 5 LSS subscales.

Results

Associations between challenge, threat, irrational beliefs, and the LSS

To assess the relationships between challenge, threat, irrational beliefs, and the LSS subscales, bivariate correlation analyses were conducted (Table 2). Pearson's correlation coefficients for challenge appraisal revealed small but significant positive associations with social support ($r = .29$, $P < .01$), and positive feedback ($r = .19$, $P < .05$). Pearson's correlation coefficients for threat appraisal revealed small but significant positive associations with total irrational beliefs ($r = .36$, $P < .001$), and autocratic behaviour ($r = .25$, $P = .01$).

Challenge and threat appraisal to predict LSS

Because correlation analyses revealed significant relationships for challenge, threat, irrational beliefs, and LSS subscales, total irrational beliefs were included in subsequent regression analyses to examine the relationships between challenge and threat, and LSS subscales. Therefore, 5 hierarchical regression analyses were conducted, with age entered at step 1, total irrational beliefs entered at step 2, and challenge and threat entered at step 3, predicting each of the 5 LSS subscales.

For training and instruction, at step 1 age accounted for a significant proportion of variance, $R^2 = .09$, $P < .01$, but total irrational beliefs at step 2, $R^2 = .03$, $P > .05$, and challenge and threat at step 3, $R^2 = .02$, $P > .05$, did not account for a significant proportion of variance. Standardised coefficients revealed a significant positive association between training and instruction, and age ($\beta = .33$, $P = .001$).

For democratic behaviour, at step 1 age did not account for a significant proportion of variance, $R^2 = .00$, $P > .05$, neither did total irrational beliefs at step 2, $R^2 = .03$, $P > .05$, or challenge and threat at step 3, $R^2 = .01$, $P > .05$.

For autocratic behaviour, at step 1 age did not account for a significant proportion of variance, $R^2 = .00$, $P > .05$, neither did total irrational beliefs at step 2, $R^2 = .03$, $P > .05$. But challenge and threat at step 3 did account for a significant proportion of variance, $R^2 = .07$, $P < .03$. Standardised coefficients revealed a significant positive association between autocratic behaviour and threat ($\beta = .25$, $P < .02$).

For social support, at step 1 age did not account for a significant proportion of variance, $R^2 = .01$, $P > .05$, neither did total irrational beliefs at step 2, $R^2 = .02$, $P > .05$. But challenge and threat at step 3 did account for a significant proportion of variance, $R^2 = .07$, $P < .04$. Standardised coefficients revealed a significant positive association between social support and challenge ($\beta = .26$, $P < .01$).

For positive feedback, at step 1 age did not account for a significant proportion of variance, $R^2 = .00$, $P > .05$, neither did total irrational beliefs at step 2, $R^2 = .01$, $P > .05$. But challenge and threat at step 3 did account for a significant proportion of variance, $R^2 = .07$, $P < .03$. Standardised coefficients revealed a significant positive association between positive feedback and challenge ($\beta = .21$, $P < .05$), and significant negative association between positive feedback and threat ($\beta = −.22$, $P < .04$).

Discussion

This was the first study to consider challenge and threat as part of coaching stress, and the first to examine the relationships between challenge and threat cognitive appraisals with self-reported coaching behaviours. Results from the regression analyses revealed small but positive associations between challenge appraisals and social support, and between threat appraisals and autocratic behaviour, and a negative association between threat appraisals and positive feedback. This may suggest that participants with a tendency to appraise a stressor as a challenge are more likely to offer social support to their athletes, while participants who tend to appraise stressors as a threat are more likely to be autocratic in their coaching behaviour and less likely to offer positive feedback. Although not all coaching behaviours were related to challenge and threat in this study, these results indicate partial support for the hypotheses that challenge would be associated with positive coaching behaviours, while threat would be associated with negative coaching behaviours. This may have implications on how coaches are educated, and the psychosocial skills required coach effectively in stressful situations. Clearly, it is advantageous for coaches to be able to appraise stressors as a challenge, and past research has

successfully used instructional sets (Turner, Jones, Sheffield, Barker, & Coffee, 2014) and imagery (Williams & Cumming, 2012) to promote challenge. Therefore, practitioners should consider working with coaches on strategies that can elicit greater challenge appraisals.

The finding that greater challenge appraisal and lesser threat appraisal is associated with more positive coaching behaviours can be explained in 2 main ways. First, those who react to stressors with a challenge appraisal may have a greater capacity to offer support and feedback to others, because they feel they can cope with situational demands themselves. The notion that effectively coping with stress may enhance the provision of social support is one that could stimulate future research, as much of the extant literature (e.g., Thoits, 1995) focuses on the receipt of social support and its buffering effects on stress. Second, it has been proposed that challenge is associated with more positive affect compared to threat (Blascovich & Mendes, 2000; Skinner & Brewer, 2002). Positive emotions can acutely broaden an individual's range of thoughts and actions (Fredrickson, 2001), and may promote the building of future social relationships (Kjell & Thompson, 2013). Therefore, coaches who appraise a stressor as a challenge may experience positive emotions that encourage behaviours that promote stronger relationships with their athletes, such as social support and positive feedback. Emotions were not measured in the current study therefore this contention should be followed up by further research. Research should also explore the provision of social support and how this is associated with a challenge state.

The finding that threat cognitive appraisals are positively related to autocratic behaviour also supported the hypotheses, and can be explained through existing coaching research. Autocratic behaviour is the extent to which a coach keeps apart from the athletes and stresses his or her authority in dealing with them (Chelladurai & Saleh, 1980). Research indicates that a coach is more likely to use autocratic behaviour when they are highly stressed and as a result feel the need to distance themselves from others (Kelley et al., 1999) and withdraw from interacting with their athletes (Frey, 2007). Interestingly, 1 study revealed that world-class coaches may adopt controlling behaviours to "mask" or hide their stress so athletes would remain unaffected by the coaches' stress (Olusoga, Butt, Maynard, & Hays, 2010). The current study goes further than linking greater stress to autocratic behaviour by uncovering that threat is related to greater autocratic behaviour, whereas challenge is not. This offers a more complex picture of how coaching stress influences behaviour by assessing stress as a multidimensional construct. Considering the BPS model's notion of demand appraisals versus resource appraisals, autocratic behaviour resulting from threat cognitive appraisals may be due to the depletion of a coach's psychological resources in stressful situations, damaging their capacity to attune to their athletes' thoughts and feelings (Mageau & Vallerand, 2003). Mageau and Vallerand (2003) postulate that controlling behaviours may occur when pressure to perform leads coaches to become outcome focused and ego oriented, thus ignoring their athletes' inner experiences. The notion of using autocratic behaviour as a coping

strategy rather than simply being a consequence of stress and performance pressure warrants further investigation.

Results also show partial support for the hypotheses that higher irrational beliefs are associated with greater threat, and lesser challenge cognitive appraisals. Specifically, correlation analyses showed that irrational beliefs were positively associated with threat cognitive appraisals, but no associations were revealed between irrational beliefs and challenge cognitive appraisals. This may suggest that coaches who have higher irrational beliefs are more likely to appraise stressors as a threat, supporting the assertions of past research (David et al., 2002). However, causality between irrational beliefs, cognitive appraisals of stress, and coaching behaviours cannot be demonstrated using cross-sectional correlational methods, therefore future research could use randomised controlled designs to establish causal effect (Hagger & Chatzisarantis, 2009).

A finding that emerged from the data that was not hypothesised is the positive relationship between age and training and instruction, indicating that older coaches are more likely to provide training and instruction. Training and instruction has been described as one of the most important functions of a coach to improve performance by teaching athletes the skills, techniques, and tactics of the sport (Chelladurai & Saleh, 1980). This finding may be attributed to age generally equating to greater experience, and consequently the acquisition of technical, tactical, and pedagogical knowledge. Research shows that experienced coaches exhibit significantly more technical instruction than their inexperienced counterparts (Jones, Housner, & Kornspan, 1997), and instructional behaviours are predominant amongst expert coaches (Cushion & Jones, 2001). Future research should focus specifically on age and experience in relation to stress and coaching behaviour using a larger sample.

The limitations of the current study present some opportunities for future research. First, much challenge and threat research uses cardiovascular (CV) reactivity markers to indicate challenge and threat (e.g., Turner et al., 2014), circumventing the inherent biases in self-report measures (e.g., Blascovich & Mendes, 2000). In addition, because cognitive appraisal can occur both consciously and unconsciously (Blascovich & Mendes, 2000), it is not clear to what extent participants can accurately introspect on their cognitive appraisals (Gawronski & Houwer, 2014). So future research may wish to include CV measures of challenge and threat and explore the relationships between CV reactivity and coaching behaviours. Second, participants were asked in the ALE-scale to recall their most stressful experience within the last month. However, it is unknown how accurately participants can recall the details and severity of these stressful events, as memory retrieval can be impaired after an acute stressor (Kuhlmann, Piel, & Wolf, 2005). Third, caution should be applied when interpreting the results of self-report measures due to limitations such as response bias (Van De Mortel, 2008). Caution should also be exercised due to the relatively small, although significant, proportion of variance accounted for by challenge and threat appraisals in autocratic behaviour, social support, and positive feedback (less than 10%). In addition, Beta coefficients indicate

small associations ($\beta < .3$) between variables. However, this study examines the relationships between challenge and threat cognitive appraisals and coach behaviour, which is a complex endeavour, and therefore although R^2 values are small, important conclusions can still be drawn from the analyses. Lastly, it should be noted that the findings of this study are based on the completion of the 3 measures taking approximately 14 min to complete, which may not yield an in-depth understanding of how stressful situations impact coaching behaviour. Indeed, in addition to stress, there are numerous personal and contextual factors which impact coaches' behaviour including their education, competitive experience as an athlete, and hours of coaching per week (Rodgers, Reade, & Hall, 2007). Therefore, future research could utilise laboratory methods to induce stress and observe the behavioural consequences of challenge and threat in coaches (e.g., Turner et al., 2012) to offer objective indicators of coaching behaviours. Further, CV indices of challenge and threat (cardiac output and total peripheral resistance; e.g., Turner et al., 2012) could be examined to address the shortcomings of self-report measures of challenge and threat. It is important to move beyond the cross-sectional correlational design adopted in the current study to enable inferences about causality. Despite these limitations, this study provides fruitful avenues for future research exploring the behaviours of coaches in relation to their appraisals of stressful situations.

To conclude, this study is the first to demonstrate the relationship between coaches' cognitive appraisals of stressful situations, and coaching behaviour. Specifically, coaches reporting greater challenge and lesser threat appraisals reported more positive and less negative coaching behaviours. These findings suggest that it may be important to examine coaching stress as a multidimensional construct. Practitioners should work with coaches to promote challenge appraisal, and reduce irrational beliefs, in order to encourage more positive coaching behaviours. Future research should more robustly examine the findings of the current study using larger samples across a range of sports, using meditational and experimental methods, as well as using more objective markers of challenge and threat, and coaching behaviour.

Disclosure statement

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