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1 Abstract

2 This study extends recent coach stress research by evaluating how coaches perceive
3 their stress experiences to affect athletes, and the broader coach-athlete relationship.
4 12 coaches working across a range of team sports at the elite level took part in semi-
5 structured interviews to investigate the three study aims: how they perceive athletes to
6 detect signals of coach stress; how they perceive their stress experiences to affect
7 athletes; and, how effective they perceive themselves to be when experiencing stress.
8 Following content analysis, data suggested that coaches perceived athletes able to
9 detect when they were experiencing stress typically via communication, behavioral,
10 and stylistic cues. Although coaches perceived their stress to have some positive
11 effects on athletes, the overwhelming effects were negative and affected ‘performance
12 and development’, ‘psychological and emotional’, and ‘behavioral and interaction’
13 factors. Coaches also perceived themselves to be less effective when stressed, and this
14 was reflected in their perceptions of competence, self-awareness, and coaching
15 quality. An impactful finding is that coaches are aware of how a range of stress
16 responses are expressed by themselves, and to how they affect athletes, and their
17 coaching quality. Altogether, findings support the emerging view that coach stress
18 affects their own, and athlete performance.

19 Key words: appraisals, interviews, strain, transactional stress

1 **Examining the effect of coach stress on athletes: A coach perspective**

2 This paper examines how coaches perceive their stress experiences to influence
3 athletes and the broader coach-athlete relationship. Research within the domain of
4 coach-stress (e.g., Knight, Reade, Selzler, & Rodgers, 2013; Olusoga, Butt, Hays, &
5 Maynard, 2009; Rhind, Scott, & Fletcher, 2013) indicates that coaches experience a
6 variety of stressors that include athlete performance, other coaches, organisational
7 pressure, and staff conflict.

8 Within the contemporary sport science literature, stress is described as, “an
9 ongoing process that involves individuals transacting with their environments, making
10 appraisals of the situations they find themselves in, and endeavoring to cope with any
11 issues that may arise” (Fletcher, Hanton, & Mellalieu, 2006, p. 329). Furthermore, the
12 term *stress* represents the overall process incorporating stressors, strains, appraisals,
13 and coping responses, rather than just the transaction between the person and the
14 environment (e.g., Olusoga, Butt, Maynard, & Hays, 2010; Thelwell, Weston,
15 Greenlees, & Hutchings, 2008). It is evident that coaches, like athletes, may struggle
16 to manage the demands that they encounter and as a consequence it is likely that
17 stressors experienced by coaches will not only negatively affect themselves insofar as
18 negating their effectiveness, but may also affect the athletes with whom they work
19 given that there may well be numerous psychological, emotional, behavioural, and
20 performance consequences (e.g., Kristiansen & Roberts, 2010; Price & Weiss, 2000;
21 Vealey, Armstrong, Comar, & Greenleaf, 1998). Whilst many coaches strive to
22 cultivate a positive coach-athlete relationship to enhance athlete performance,
23 satisfaction, and well-being, the stress that they experience may instead have
24 detrimental effect on each of these aims. More specifically, this stress can negatively
25 impact upon the coach-athlete relationship with reduced athlete confidence, impaired

1 performance, dissatisfaction, amotivation and ill-being often being reported (Price &
2 Weiss, 2000; Sagar, Lavellee, & Spray, 2009).

3 In the knowledge that athletes often seek support and advice from those with
4 whom they are familiar (Jowett & Cockerill, 2003), it seems appropriate to examine
5 how coaches manage their stress in order to prevent any detrimental consequences to
6 athlete performance and well-being. Consequently, researchers (e.g., Smith, Shoda,
7 Cumming, & Smoll, 2009; Smith, Smoll, & Cumming, 2007) have reported stress
8 responses to be associated with effective coaching and how it can influence
9 motivation, anxiety reduction, confidence, and self-esteem. Although the research has
10 focused on assessments of coaches' behaviors (Becker & Wrisberg, 2008), thoughts
11 of successful coaches (Gallimore & Tharp, 2004; Jones, Armour, & Potrac, 2003), or
12 athlete interpretations of being coached (Becker, 2009; Kristiansen & Roberts, 2010),
13 each of which providing useful information to the interplay between the coach and
14 athlete, a consequence is that little attention has been given to the effects of poor
15 coaching on athletes (Gearity & Murray, 2011).

16 Research findings associated with poor or ineffective coaching have tended to
17 result from studies conducted with athletes. For example, when examining the factors
18 that negatively affected Olympic athletes' performance, Gould and colleagues (Gould,
19 Greenleaf, Guinan, Dieffenbach, & McCann, 2001) reported a number of coach
20 behaviors to include poor communication, lack of access, lack of enthusiasm, poor
21 selection and decisions, lack of role clarity, and lack of support and encouragement.
22 Moreover, Manley et al. (2008) found perceptions of low coach effectiveness and
23 competence to result from the sources of information available when coaches present
24 themselves to athletes. Finally, Gearity and Murray (2011) reported perceptions of
25 poor coaching to be influenced by poor teaching, the coach not caring and being

1 unfair, inhibiting the development of mental skills, and promoting the use of varying,
2 although at times, negative forms of coping (e.g., avoidance of the coach). Although
3 these findings did not explicitly link poor coaching to stress experiences, it is
4 reasonable to suggest that such experiences may be a prominent underpinning
5 mechanism. For example, using the factors cited by Gould et al. (2001) in their study
6 of Olympic performance, pressure to succeed may have contributed to the stressors
7 encountered by poorly performing coaches who demonstrated poor communication,
8 inappropriate decision making, and reduced enthusiasm. Such assumptions might also
9 apply for the examples of poor coaching outlined by Gearity and Murray (2011) and
10 whilst Manley et al. (2008) reported body-language, clarity of voice and eye contact
11 to be influential dynamic cues used to evaluate coaching ability, research shows that
12 stress experiences inhibit the effectiveness of these criteria (James & Collins, 1997).

13 In addition to the limited research on poor coaching and its associated effects
14 from an athlete perspective, some mild references to poor coaching practice exist
15 within the coach stress literature. For example, McCann (1997) reported that athletes
16 were not only able to recognise when their coaches were experiencing stress, but also
17 that coach stress had a profound influence on their confidence. Taking this further,
18 Frey (2007) and Olusoga et al. (2010) reported coaches to have an awareness of how
19 their stress experiences negatively affected athlete relaxation in performance settings,
20 that athletes were less inclined to communicate with them when they were stressed,
21 and for coaches to be aware of how fluctuations in aspects of their behavior when
22 experiencing stress (e.g., body language, communication) triggered unnecessary
23 stressors for athletes. Finally, in a recent study, Thelwell, Wagstaff, Rayner,
24 Chapman, and Barker (2016) athletes were reported as being able to detect when a
25 coach was experiencing stress, for there to be some positive effects of the coach

1 experiencing stress despite the majority being negative, and for athletes to view their
2 coach as being less effective when stressed. Whilst evidence suggests athletes to be
3 able to identify when a coach is experiencing stress, the awareness that coaches have
4 of the signals and messages they give to athletes indicating that they are experiencing
5 stress requires further exploration. It is possible that many coaches are unaware of the
6 signals transmitted to athletes, leading to potential communication and interaction
7 issues within the coach-athlete relationship. Irrespective to whether coaches are
8 conscious to the stress signals that they communicate to athletes, it is likely that they
9 will have a contagion effect (Friesen et al., 2013). This is of particular relevance given
10 the findings from Van Kleef, De Dreu, and Manstead, (2004) who argued that
11 emotional contagion is more likely to manifest within co-operative situations, such as
12 the dynamic between coach and player, as compared to competitive situations where
13 individuals would be less open and susceptible to the displays of others. Furthermore,
14 even if coaches are aware that their stress experiences can result in potentially
15 ineffective and harmful behaviors to athlete performance, guidance to how they can
16 manage the stressors and potential effects seems justified.

17 In summary, coach stress experiences can be harmful to the interdependent
18 coach-athlete relationship and athlete performance (Price & Weiss, 2000), thus a
19 better understanding to how coaches perceive their stress to affect athletes is
20 warranted (Poczwardowski, Barott, & Jowett, 2006). To this end, the overall aim of
21 the present study is to provide a systematic exploration of the effects of stress on
22 coaches in terms of their transactions with athletes. To achieve this aim, we first
23 explored the signals of stress that coaches think their athletes can detect; more
24 specifically through responses to stress. The second aim explored coach perceptions
25 to the effect they have on athletes when experiencing stress. With coach employment

1 predominantly reliant on athlete performance, one would assume that having a
2 detailed understanding of how their stress influences their athletes would be
3 advantageous. Given that coaches' psychological, physical and behavioral responses
4 to stress experiences are likely to be detrimental to the effectiveness and general
5 performance of coaches (Fletcher & Scott, 2010), a final aim of the study was to
6 explore how effective coaches perceive themselves to be when stressed.

7 With the above in mind, it is intended that the findings will also have
8 influence wide-ranging applied implications for the development of coach training
9 programmes.

10 **Method**

11 **Participants**

12 A total of 12 male participants (M age 36.4, $SD = 9.03$), all of whom were
13 full-time coaches (minimum 2 years) of team sports (cricket, $n = 5$; soccer, $n = 5$;
14 rugby union, $n = 2$) within a professional environment within the UK, were recruited
15 for the study. Team sports, as opposed to a combination of team and individual sports
16 were selected to aid a more specific focus on the stress embodiment, emotional
17 expressions, and interpersonal relationships experienced by the participants.

18 Additionally, all participants acknowledged that they experienced stress, to some
19 degree, within their respective positions. All participants volunteered for this study
20 and signed informed consent forms prior to taking part. The research was undertaken
21 according to the ethical guidelines of the lead author's institution, from which a
22 favorable ethical opinion was received.

23 **Data collection**

24 **Preparation booklet.** To facilitate the data collection process, participants
25 were provided with a preparation booklet (Wagstaff, Fletcher, & Hanton, 2012a) prior

1 to being interviewed. The booklet consisted of an introduction to the study, an
2 overview of the structure and content of the interview guide, and a ‘highlights and
3 critical incidents’ section. The introduction to the study included the definition of
4 stress advocated by Fletcher et al. (2006) that supports Lazarus and Folkman’s (1984)
5 transactional theory of stress. The rationale for the ‘highlights and critical incidents’
6 section is that when combined with subsequent interviews, the researcher is better
7 placed to be able to generate a fuller ideographic profile of key experiences that the
8 respondent is able to recall. For example, participants were asked to recall the most
9 salient incidents that may have influenced a stress experience to enable them to better
10 reflect to how that may have influenced the signals presented, the subsequent
11 influence on their athletes, and their perceptions of effectiveness. Given the study
12 required participants to retrospectively recall experiences, we perceived that over the
13 course of the data collection (that may have necessitated multiple interviews) the
14 ‘highlights and critical incidents’ section would promote prolonged participant
15 engagement, trustworthiness in the data, and greater interaction between the data
16 collection and the analysis phases of the study.

17 **Interview guide.** An interview guide was developed following a review of the
18 literature that has examined stress experiences in sport (Frey, 2007; Olusoga, et al.,
19 2010; Thelwell et al., 2016), in addition to consideration of the research team’s
20 experiences researching, and working, with elite level athletes and coaches. The guide
21 was initially piloted with two full-time professional level coaches prior to the data
22 collection period commencing. The pilot interviews enabled minor amendments to the
23 clarity of some questions to be made and demonstrated the need for inclusion of
24 further elaboration and clarification probes. The final interview guide consisted of
25 three sections: signals of stress (e.g., “how do you think that [your athletes] know that

1 you are experiencing stress?”), potential effects on athletes (e.g., “what effect does
2 [your stress experiences] have on your athletes?”), and perceptions of effectiveness
3 (e.g., how effective do you think you are in your coaching when you are experiencing
4 stress?”).

5 **Data collection.** Each participant was sent a copy of the preparation booklet
6 one week prior to the interview date. All interviews were face-to-face and conducted
7 by the same researcher who was trained in qualitative techniques. Despite the semi-
8 structured interview format enabling a certain element of structure to each interview,
9 the ordering of questions and subsequent exploration varied depending on participant
10 responses (Fontana & Frey, 2003). To supplement the ‘fixed’ questions across the
11 interviews, a probe (“please can you elaborate on [the issue]?”) and elaboration
12 (“could you explain [the issue] in more detail please?”) questions were employed to
13 facilitate the flow of the interviews. At the conclusion of each section, participants
14 were asked if all appropriate responses had been discussed and explored in their
15 entirety. Interviews were conducted during the competitive season, lasted between 42
16 and 65 minutes (M length = 53.5, SD = 7.4), were recorded digitally, and yielded a
17 total of 138 pages of single-spaced text having been transcribed verbatim. Two of the
18 coaches were invited for a second interview to clarify and confirm data presented
19 within the initial interview and these lasted for no longer than 15 minutes.

20 **Data Analysis**

21 Using the recommendations proposed by Connelly and Peltzer (2016) as a
22 guide, the research team embarked on the data analysis to ensure that the relationship
23 between the data collection and data analysis process was evident. To achieve this,
24 the first and second researchers commenced by reading and re-reading the interview
25 text prior to engaging in content analysis for each transcript using the procedures

1 recommended by Miles and Huberman (1994). In doing so, the two researchers who
2 were trained in qualitative methods independently identified and coded words,
3 phrases, quotes and sayings for each of the main interview questions prior to
4 independently organising them into groups of common themes and general
5 dimension. Whilst primarily using an inductive content analysis approach similar to
6 those used by Arnold, Fletcher, and Molyneux (2012), in the latter stages of the data
7 analysis the themes were deductively placed into *post hoc* categories, based on the
8 emerging themes. Having used both inductive and deductive analyses to interpret the
9 data into higher order themes and general dimensions, the final phase of analysis was
10 dependent on triangular consensus between the first two researchers and a third
11 researcher who acted in the capacity of a “critical friend” (Faulkner & Biddle, 2002).
12 The third researcher was not involved with either the data collection or initial analysis
13 of data, and their role was to confirm, or otherwise, the placement of raw data themes
14 into higher order categories. In this stage of the analysis, the third researcher was
15 required to thoroughly examine all steps taken by the first two researchers in the
16 inductive and latterly deductive phase of data analysis.

17 **Enhancing the trustworthiness of the analysis.** Acknowledging the recent
18 guidelines to the markers of high quality qualitative research advocated by Sparkes
19 and Smith (2009) and Tracey (2010), the research team ensured that the eight criteria
20 (worthy topic, rich rigor, sincerity, credibility, resonance, significant contribution,
21 ethics, and meaningful coherence) were adhered to. Given the present study’s
22 relevance, timeliness, significance, and interest, it was perceived that it was a worthy
23 topic. In terms of rigor, the study was characterised by rich complexity, face validity,
24 and due diligence given the substantial time, care, and thoroughness in data
25 collection, participant debriefing and member checking. Sincerity was observed via

1 the honesty and transparency displayed by the “critical friends” who were used to
2 monitor changes in the researchers’ approach to data collection and increase the
3 trustworthiness of the analysis process. To ensure credibility, and reduce subjective
4 bias, we employed broad sampling, the use of a “critical friend,” member checking,
5 and multivocality of participant quotations. Content analysis procedures also provide
6 emergent themes that can be logically traced back to raw data. The use of direct
7 content-rich quotations to support the narrative also demonstrates resonance where
8 the visual representations allowed participants’ complex experiences to vividly
9 emerge. In an attempt to enhance naturalistic generalisation and transferability, we
10 gathered direct quotations from a breadth of individuals in the sample, yet leave it to
11 the reader to decide the extent to which the content overlaps with their own
12 experiences. In evaluating the significance of contribution of the research, we argue
13 the theoretical (e.g., implications for conceptual understanding), heuristic (e.g.,
14 stimulation of curiosity, discourse, and further exploration), and practical (e.g., utility
15 of knowledge for practitioners) developments to develop the area of study. It goes
16 without saying that the research adhered to procedural (i.e., institutional ethical
17 clearance was obtained), situational (i.e., reflection on the methods employed and data
18 worth exposing), relational (i.e., reflection on the researcher actions and potential
19 consequences on participants and their organisations), and exiting (i.e., avoiding
20 unjust or unintended consequences of presented findings) ethical obligations. Finally,
21 the quality of the study should be judged via its meaningful coherence. In attempting
22 to achieve this, we feel that the study achieved its stated purpose, used methods and
23 representation practices that matched the domain and research paradigm, and
24 attentively interconnected extant literature with research foci, methods, and findings.

25

Results

1 The results derived from the data analysis procedures represent the collated
2 interview responses from all 12 participants. The raw data themes were abstracted
3 into lower and then higher order categories prior to being organised under the
4 following three central dimensions of research foci: signals of stressors; effect of
5 coach stress on athletes; and coach effectiveness. The data are presented in Figures 1-
6 3 and via verbatim quotations throughout the following narrative.

7 **Signals of coach stressors**

8 The full range of signals are illustrated in Figure 1. A total of 91 raw themes
9 were inductively placed into 22 lower order themes and then five higher order themes
10 (change in verbal communication style; change in coach appearance or behaviors;
11 change in coaching style; change in interaction style with players and others; and,
12 non-coach oriented signals). One of the most common signals related to changes in
13 verbal characteristics of the coach's speech with athletes. Raw data themes relating to
14 changes within the coach's verbal communication style included 'more concise
15 instructions' and 'increased pace of speech'. Specifically, one coach illustrated the
16 perceived prominence of a change in their tone of voice when experiencing stress:

17 [the way I speak]... I would say it would probably be a lot more
18 emotional. I suspect I'd be more monotone if I wasn't under stress.
19 Sometimes you try to put more emotion into your talk to promote an
20 emotive response from the lads but I'd say that when you're
21 [referring to self] under pressure it would be more difficult to control
22 your tone.

23 Whilst the verbal characteristics were seen as a prevalent signal, those
24 emanating from physical actions of the coach were also commonly referred to. Along
25 with perceptions of 'negative body language' and 'increased use of hand gestures',

1 the following quote indicates an awareness of ‘walking around the playing arena’ as
2 being a key signal that athletes would be able to pick up on:

3 I don't march about anymore because when I used to do a lap
4 around the pitch or something, the [player's] used to think
5 something was wrong. That was a signal they picked up that there
6 was something wrong with you if you were doing a lap, so I now
7 try not to.

8 Coaches in this study also stated athletes were be able to perceive their stress
9 by noticing a loss, or change in their personal behavioral patterns. For example, the
10 following quotation highlights how athletes might become aware of how coaches
11 deviate from their normal behavior:

12 What they would see on a daily basis is a change in my behavior if
13 you like because you have a certain way when you are relaxed, you
14 have a certain way of being and I would say they get to know how
15 you are 95% of the time but the 5% of the time they'll see a
16 change...I know that I start to fidget a lot which is a dead giveaway
17 to them when I kinda start to stress out.

18 One commonly cited signal was a deviation in the style of coaching used by
19 coaches when working with athletes. Specifically, it seems the predominant change
20 perceived as obvious to the athletes was the reverting to instructional type behaviors.
21 This signal is illustrated by the following coach quotation:

22 I think they see that you're coaching style changes. It becomes more
23 command style, you know, it becomes more ‘it needs to change now
24 and happen now’, when I gather them in it becomes more like
25 instruction ‘this is not happening, it's not happening because of this’.

1 Finally, the coaches in this study perceived athletes to detect and attribute
2 many discrete signals to coach stress beyond overt behaviors per se. That is, coaches
3 felt players would notice changes in the practice environment and attribute this to
4 their stress as indicated by the following quotation:

5 I think it effects the environment, which they can see you know. I
6 wouldn't say it's a bad thing all the time because players need to
7 know the change of demands...but if its [due to] a stress then the
8 whole feeling of the session can become negative and it sometimes
9 very hard to change that or bring it back on track.

10 **Effects of coach stress on athletes**

11 Findings relating to the effects of coach stress on their athletes are presented in
12 Figure 2. Analysis of such findings resulted in the accrual of 64 raw themes of data,
13 14 lower order themes and the 4 higher order themes of: direct negative effects on
14 player performance and development; negative effect on behavior/appearance;
15 negative change in the psychological/emotional state; and, positive outcomes. A
16 number of interesting raw data themes such as 'general decrease in performance
17 level', 'less fluent performance' as well as a 'reduced adaptability' were evident
18 within the lower order theme 'reduced outcome performance levels'. In addition, a
19 number of coaches referred to themes describing 'avoidance behavior detrimental to
20 performance' that led to the emergence of the lower order theme 'playing within
21 themselves'. One coach emphasised their fear of causing players to be afraid of fully
22 expressing their performance potential during their experiences of stress as shown
23 within the following quotation:

24 [When I'm stressed] that's something I'm kind of conscious
25 of...when I shout to them from the sidelines that they don't become

1 afraid of expressing themselves because of the command style,
2 which is black and white and I worry that if I'm constantly like that
3 then they'll fear being expressive.

4 In addition to direct effects on performance, several coaches reported changes
5 in players' general behavior as a specific consequence of their increased directness
6 during experiences of stress. The lower order theme 'variable behaviors' presented
7 some interesting data in that there appeared to be a conflicting response from athletes.
8 On one end of the continuum was a perception that athlete behaviors became more in
9 line with the behaviors demonstrated by the coach, whilst at the opposite end, as
10 highlighted within the following quotation, it appeared that athlete behaviour
11 regressed to that of a child:

12 If we're under pressure and I am more direct with them, their
13 behavior becomes more childlike, often more of a parent-child
14 relationship more than a kind of grown up to grown up. I think our
15 players shift the opposite direction so the more direct we get, the
16 more like a child they will behave, whereas we actually want our
17 young professionals to talk to us like adults.

18 Whilst the data highlighted in Figure 2 illustrates a range of over physical and
19 behavioral effects on performers, an array of psychological and emotional effects
20 were also cited. More specifically, the theme of 'increased experiences of stress', was
21 suggested by over half of the participants in the 'negative emotional outcomes' lower
22 order theme, with a reduction in player confidence, focus and motivation each
23 mentioned by several coaches. The following provides an illustration of one coach's
24 perception of the enhancement of athlete stress levels as a results of their own:

1 If it's out of control [coach behavior due to stress], I think it puts
2 the athlete under the highest possible stress... their whole game
3 goes, it gets fifteen times worse because everyone gets anxious,
4 they get stressed themselves and delivery to them then becomes
5 extremely difficult because it's a major pressure point.

6 Whilst the transfer of stress was highlighted within this higher order theme,
7 the lower order theme of 'loss of motivation' also provides a key finding with coaches
8 asserting not only the reduction in short-term motivation, but also an amotive
9 enduring state with consequences to their long-term sport participation. The raw data
10 theme of 'losing a connection with the sport' is illustrated by the following quotation:

11 The difficulty I have is that they want to play [sport] whereas the
12 bit in the gym is not necessarily what they want to do so if I'm
13 stressed it can reflect in them and it can be much harder to
14 motivate them... and if I don't relate it as well, it might be due to
15 the stress, that then has an effect. You might need to get them
16 back [in] because they've lost a bit of connection.

17 As with findings relating to coach effectiveness, several positive effects on
18 athlete performance were identified as potential consequences of coach stress. These
19 findings led to the synthesis of the lower order themes of 'opportunities to develop'
20 and 'enhanced player performance'. With reference to the latter theme, one coach
21 commented on the potential enhancement in athlete focus as an outcome of their
22 personal experience of stress:

23 It [the effect of coach stress] might actually be the kick up the
24 backside the players needed and it could make them play better or
25 behave better depending on what the issue is. There are times when

1 I think to myself that actually, me being really stressed, isn't
2 always that bad and when I reflect on it, I can see the ones who are
3 able to read the situation and get on with it.

4 **Coach effectiveness**

5 A total of 103 raw data themes relating to the coaches' perceptions of changes
6 in their effectiveness during experiences of stress emerged. They were encapsulated
7 by 23 lower order and seven higher order themes: undesirable coaching behaviours,
8 reduction in general coaching competencies, reduced awareness, reduction in quality
9 of information delivered, negative effects upon wider elements, negative personal
10 outcomes, and positive effects (Figure 3). One of the most commonly reported effects
11 within the higher order themes of 'undesirable coaching behaviors' related to the
12 adopting of coaching behaviors which resulted in perceived decreases in athletes'
13 ownership of development. The predominant mechanism for this decrease mirrors the
14 earlier signal of a reversion to instructional behaviors during coaching, as the
15 following quotation illustrates:

16 I can't be the complete coach because the complete coach will be
17 a guided discovery coach or a question and answer coach. When
18 I'm stressed it becomes more of a command style, like the other
19 two aspects of me being a good coach kind of get pushed to the
20 side and my frustration takes over.

21 With further effects of stress on coach effectiveness, one of the most
22 prominent effects derived from the analysis process related to the perception of a
23 reduction in clarity of the information delivered by coaches. Coaches in this study
24 consistently referred to sending 'unclear messages to players' as well 'attempting to
25 deliver too much information at once' and having a 'lack of structure' in their

1 messages when experiencing stress. The following quotation demonstrates one
2 coach's delivery of unclear messages when experiencing stress:

3 Under stress you've got a lot more going on and a lot less clarity.
4 If I've planned something and I'm calm, then I can deliver it in more
5 of a clear way... messages to the players are less clear when I get
6 stressed; I know I am not consistent and I move away from what is
7 needed. It's like I know what I want to do but I can't [communicate
8 it] and not having that control makes me less effective.

9 A further effect on effectiveness were the dysfunctional behaviors towards
10 players. Coaches referred to a range of themes including 'saying things that you
11 regret' and 'rejecting approaches' of players. The following quotation provides an
12 insight into one coach's dismissive behavior when experiencing stress:

13 That hectic feeling that things aren't going to plan and players are
14 wanting to ask questions... I'm visualising myself now not wanting
15 them around me when they are asking me what I think are stupid
16 questions, rather than thinking 'there's no such thing as a stupid
17 question' and I need to be aware that my [player's] might want to
18 discuss things with me.

19 Whilst the above effects could relate to more generic aspects of coach
20 effectiveness, several coaches also cited effects that could be more individual focused.
21 For example, a reduction in awareness of 'individual needs' was one example of this
22 theme, with coaches challenging their players excessively and overlooking the effects
23 of their behaviors on an individual. The following quotation illustrates how one coach
24 acknowledged, through reflection, how they ignore the preferred learning style of
25 their players during experiences of stress:

1 You've got to make it player relevant and I don't... There's no point
2 in me telling [player] who's a kinaesthetic learner, all these
3 coaching points, he's just going to go out there and forget. So it
4 becomes irrelevant, you lose your focus on who's within that group
5 and you just think, I need to get all this [information] out.

6 In addition to overlooking short-term athlete needs, the coaches also
7 highlighted overlooking athletes' long-term development when experiencing stress.
8 This typically related to ignoring the holistic development of players; indeed, the
9 following quotation illustrates how one coach believed they made short-term oriented
10 selection decisions when experiencing stress:

11 [Decisions] with massive short term benefits... the more pressure
12 you're under, the shorter your decisions become in terms of the
13 players development, so rather than looking at what is the right
14 opportunity for the player now... when you're under pressure to
15 win the game and perform we'll probably go to someone more
16 experienced than someone who has a higher amount of potential.

17 Despite the array of short- and long-term detrimental effects perceived to
18 influence coach effectiveness, findings also indicated coaches believed the
19 experiences of stress could indirectly enhance their effectiveness. This was argued in
20 relation to both immediate performance and development benefits via motivational
21 effects, as is illustrated for the latter in the following quotation:

22 I think the positive is more of a longer term development thing
23 because to get better things have to be uncomfortable, because the
24 way I look at it now, it [the stress] keeps you on your toes and
25 wanting to get better. When I'm stressed it kind of forces the

1 players to think for themselves a bit and get on with things so I
2 suppose it can be effective too!

3 **Discussion**

4 The aim of the current study was to systematically examine how elite coaches
5 perceived athletes to identify signals of coach stress, to how their stress experiences
6 affected their athletes, and to how effective they perceived themselves to be when
7 experiencing stress. The significance of the study being how the findings provide an
8 important progression in the coach-athlete literature that advance from an
9 understanding of coach stress and associated coping to how their stress affects others
10 and how they are perceived. The key impact being the benefit to future research and
11 practical knowledge. A general finding was supportive of emerging research (Frey,
12 2007; Olusoga et al., 2010) in that coaches reported awareness of a range of signals to
13 be conveyed when experiencing stress and for them to be predominantly detrimental
14 on athlete and their own coaching outcomes. Strengthening this notion, it is noted by
15 Jowett and Cockerill (2003) that coaches and athletes emotions, cognitions, and
16 behaviors are interdependent in the coach-athlete relationship.

17 With reference to the signals of stress, the present findings support and extend
18 those of previous studies. Most notably, the signals highlighted by Manley et al.
19 (2008) of vocal deviations, body language and facial expressions were also found
20 within participant responses, nevertheless, it should be noted that the current sport-
21 focused study is the first to attribute these findings to stress experiences *per se*. To
22 extend the previous findings, a further theme to emerge in the present study was the
23 identification of environmental changes as a signal of coach stress, highlighting the
24 sensitivity of athletes to such signals and the important role coach stress might have in
25 influencing the emotional and psychosocial climate of the entire elite sport

1 environment. Whilst this may appear somewhat obvious that the emotions
2 experienced by coaches were influenced by the person-environment interaction, the
3 present study served to illustrate some of the specific mechanisms through which
4 stress is experienced.

5 The range of stress signals that coaches portray indicates a general awareness
6 and as such, should serve as being instrumental to regulation process. However, the
7 reported influence of coach stress on athletes, and coach perceptions of effectiveness
8 appear to underline an inability of coaches to manage stress and emotions in
9 challenging situations. With the findings regarding signals of stress in mind, it would
10 appear necessary for scholars to consider coping and stress management strategies,
11 during training and competition. Interventions based on, for example, Mindfulness
12 Based Stress Reduction provide a strong rationale for the development of stress
13 management for clinical and healthy populations (Chiesa & Serretti, 2009). Despite
14 the current absence of research including sport coaches, Longshore and Sachs (2015)
15 recently noted that Mindfulness training is a promising intervention also for sport
16 coaches to reduce stress, improve well-being, and enhance coach-athlete interactions
17 based on their empirical findings. As such, interventions aimed at heightening
18 coaches' awareness of how they behave during the absence of stress in addition to
19 their key signals of stress may provide a useful measure to enhance their effectiveness
20 in stress management, emotional stability, and increased awareness of self, and thus,
21 limit any potential contagion effect where their stress is transferred to their athletes.
22 One further avenue for exploration may be the role that rational-emotive behaviour
23 therapy plays given its recent advocates in the applied sport psychology literature
24 (e.g., Turner & Barker, 2014). Specifically, coaches may well benefit from
25 developing their capability to reappraise stressors and focus on aspects of the

1 environment and their performance (including their behaviours) that they are able to
2 control.

3 A number of noteworthy findings emerged in the present study regarding
4 coaches' perceptions of how their stress affected their athletes. First, the findings
5 provide theoretical support to Frey's (2007) hypothesis that coach stress will be
6 associated with decreased athlete performance. Further, the present findings provide
7 an illustration of coaches' awareness of the potential for their experiences of stress to
8 effect performers, which are comparable to Olusoga et al.'s (2010) findings where
9 coaches made such inferences. Second, by identifying specific effects on athletes,
10 several salient themes for coaches and researchers were revealed in the present study.
11 One such effect was the perception within coaches that athlete experiences of stress
12 would likely mirror the increase in stress that they were experiencing. Using the work
13 of Hanton, Fletcher, and Coughlan. (2005) as a guide, the findings could be explained
14 insofar that athletes are likely to experience stressors due to their perception that the
15 coach has a number of deficiencies and is not able to manage their responses to the
16 demands being placed on them. With the potential for the emotional contagion effect
17 (Wagstaff, Fletcher, & Hanton, 2012b) explaining wider influences of stress on team
18 functioning, the findings also suggest potential effects on group dynamics (i.e.,
19 'increased friction between players'). Such findings add support to the work of
20 Vijayalakshmi and Bhattacharyya (2012) with regard to emotional transference, and
21 reinforce the need to examine the emotion contagion effect present within elite sport,
22 and more specifically, the coach-athlete and coach-team relationship.

23 The findings regarding coaches' perceptions of their own effectiveness when
24 experiencing stress also offer significant knowledge extensions to the extant coach
25 effectiveness literature. For example, the present findings relating to reduced clarity in

1 communication, reduced motivation of coaches and withdrawal from the coaching
2 role are in congruence with those from previous coach stress research (Frey, 2007;
3 Olusoga et al., 2010). Nevertheless, other unique considerations regarding how
4 coaches perceived their effectiveness to be affected when experiencing stress related
5 to the adoption of alternative coaching behaviors. A common trend in participants'
6 responses was coaches' tendency to use coaching behaviors that reduced player
7 autonomy. While potentially effective when used in moderation in performance
8 domains (Arthur, Wagstaff, & Hardy, 2016), when used chronically such instructional
9 type behaviors might impede self-determined athlete motivation, and in turn,
10 jeopardise engagement within a given sport environment (Hodge, Henry, & Smith,
11 2014). While Kellman and Kallus (1994) found authoritarian behaviors of coaches to
12 reduce during experiences of stress, this disparity with the present findings might be
13 explained by Kellman and Kallus' sole focus on experiences within the competitive
14 environment. Although this comparison indicates a useful extension to findings from
15 the current study, it also highlights a need for future research to examine variances in
16 coach effectiveness across training and competition settings.

17 It is not surprising that while coaches perceived their adoption of instructional
18 behaviors to increase when experiencing stress, the use of alternative coaching
19 behaviors (e.g., guided discovery and reciprocal learning) appeared to decrease.
20 Awareness of these fluctuations highlights how deviations in coach behavior, that are
21 not appropriate in that situation, might be detrimental to the motivation of athletes
22 given that autonomy plays a critical role in performance (Occhino, Mallett, Rynne, &
23 Carlisle, 2014). Further, recent research (e.g., Memmet, Baker, & Bertsch, 2010) has
24 also illuminated the benefits of player-led coaching approaches over instructional type
25 behaviors in sports where decision-making and creative ability are beneficial.

1 In addition to the effects on effectiveness, several coaches alluded to ‘conflict
2 with individual players’ as well as reacting to player approaches with ‘dismissive’ or
3 ‘short’ responses. Although such responses might be of short-term consequences in
4 isolated occurrences, the frequent occurrence of such outcomes would likely be
5 detrimental to the coach-athlete relationship. To this end, Jowett and Poczwardowski
6 (2007) highlighted the importance of closeness (i.e., trust and respect) in the
7 development of optimal coach-athlete relationships, which would likely be
8 compromised by repeated coach-athlete breakdown in response to coach stress. Given
9 extant research has shown dysfunctional coach-athlete relationships to result in
10 unfavorable effects on athlete participation and performance, further research is
11 required to extend understanding of athletes' impressions and perceptions of coaches
12 experiencing stress.

13 Despite the potential usefulness of the present findings, several limitations
14 should be noted. Primarily, it is important to note that asking individuals (i.e.,
15 coaches) to outline how their own stress experience influences both themselves and
16 others (i.e., athletes) requires both self and social awareness. Given that such abilities
17 might be impeded at times of heightened stress, it is possible that the dependability of
18 the coaches' responses here is limited. Nevertheless, the richness of the findings leads
19 us to assume that such potential limitations were minor in the current study. Whilst
20 the findings provide support to many of those reported by Thelwell et al. (2016) in
21 their study of athletes' perceptions of perceived signals and effects of coach stress, the
22 participants in this study comprised of only team sport male coaches, and as such the
23 transferability of the findings to individual sports and female coaches should be done
24 with caution. Finally, it should be noted that the retrospective nature of the current
25 study may have biased coaches to recollect the most salient or intense experiences

1 without necessarily considered whether they were specifically negative, positive, or
2 less intense stress experiences.

3 While being cognisant to the study limitations, there are several general
4 practical implications resulting from the study. Primarily, it seems imperative that
5 applied practitioners spend time assisting coaches to develop effective coping
6 strategies to limit the potential effects of stress for both themselves and their athletes.
7 The findings indicate the usefulness of using effective reflective practice as a means
8 to enhancing coach self-awareness and stress management. Coaches reported certain
9 negative emotional outcomes associated with inadequate stress management. Further,
10 while the current study adopted a more nomothetic approach to the analysis of the
11 influences of coach stress upon coaches and athletes, the adoption of an idiographic
12 approach (i.e., diary based) may provide a greater understanding of the emotional
13 responses associated with specific outcomes in addition to potentially limiting the
14 retrospective bias potentially incurred within the present study.

15 In conclusion, the current study provides a significant extension to previous
16 work that has examined coach stress experiences and the subsequent influence on the
17 coach-athlete relationship. Specifically, we managed to enhance our understanding to
18 elite coaches' perceptions of how their athletes are able to detect whether they are
19 stressed, to how they perceive their stress experience to affect their athletes, and to
20 how effective they perceive themselves to be when stressed. Coaches were aware to
21 how their athletes detected when they were experiencing stress, and reported
22 widespread effects on athletes as a result of their stress. Coaches also generally
23 perceived themselves to be less effective when experiencing stress. The practical
24 implications of this research reinforce the need for coach education regarding stress,
25 and further research exploring the role of stress in the coach-athlete relationship.

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1

Figure Captions

2 *Figure 1.* Signals of coach stressors (numbers in parentheses indicate the number of

3 participants citing the raw theme when >1)

4 *Figure 2.* Effects of coach stress on athletes (numbers in parentheses indicate the

5 number of participants citing the raw theme when >1)

6 *Figure 3.* Effects of coach stress on coach effectiveness (numbers in parentheses

7 indicate the number of participants citing the raw theme when >1)

8

Figure 1.

5 5 4 1 1	Emotional tone of voice More direct tone Firmer tone of voice Deflated tone of voice Increased pitch of tone Inability to control tone of voice	Change in tone of voice	Change in verbal communication style
5 1 1 1	Increased frequency of delivery Trying to talk players through game Repetition of information Talking to themselves	Increased verbal information	
3 2 1 1	More concise instructions Fewer coaching tips Less conversation with players Complete silence from coach	Reduced verbal communication	
6 1 1 1	Unclear instructions Providing too much information Muddling words Lack of structure of information	Reduced clarity of verbal communication	
6	Increased pace of speech	Change in speed of communication	
3 3 1	Reverting to habit phrases Change in terminology used Confusing language used	Change in content of verbal communication	
5 1	Raised volume Become quieter	Change in communication volume	
6 4 3 1 1 1 1	Annoyed behaviors towards players Aggressive nature when instructing Rudeness towards players Threatening players Making things personal Arguing with players	Direct display of negative behaviors to players	Change in coach appearance or behaviors
6 5 2 2 1 1 1 1 1 1	Walking around the playing arena Increased use of hand gestures Changing position repeatedly Crossing arms Biting nails Shuffling feet around Standing up more on side line Throwing or kicking items Scribbling notes	Indirect display of negative behaviors to players	
3 3 1 1	Negative body language Closed off body language Standing with head down More erratic body language	Change in body language of coach	
3 2 1	Completely leaving session Moving away from players Leaving individual players	Physical withdrawing from players	
5 3 1 1 1	Visibly unhappy Not making jokes anymore Showing disappointment Impatient nature Negative facial expressions	Dissatisfied appearance	
2 2 2 1 1	Appearing less focused Seeming distant Looking tired Flattened appearance Seeming disinterested	Less engaged appearance	

3 3 2 1 1	Volatile nature Unapproachable nature Displaying a loss of emotional control Looking nervous Overly intense nature	General undesirable appearances	
5 4	Change from personal body language Unnatural behaviors for individual	Change from expected personal appearance	
1	Reduced quality of ball delivery	Change in quality of technical service	
7 1 1 1 1 1 1	Reverting to command style coaching Reduced one to one coaching Reduced guided discovery Reduced reciprocal learning More 'stop, stand still' coaching More closed questioning style Less hands on	Change of delivery methods	Change in coaching style
4 2 2 3 1 1	Increased demand on players Unrealistic expectations Less tolerant of mistakes Picking up on individual mistakes Demanding answers immediately Punishment sooner	Increase in expectations of players	
5 2 1 1	Short/blunt nature Deflect questions Forward to another coach Reject approaches of players	Negative coach responses when approached.	Change in interaction style with players and others
1 1 1 1 1	Venting frustrations to other coaches Conflict with parents Conflict with other coaches Blunt with parents Not speaking to certain players	Negative interactions with others	
2 1 1	Higher intensity of session Pace of practice Quality of the session decreases	Change in characteristics of the training session	Non-coach orientated signals.
1 1	Aura of coach becoming more dominant Negative environment present	Changes in the training environment.	

Figure 2.

5 2 1 1 1 1 1	General decrease in performance level Taking unnecessary risks Making simple mistakes Overlooking of game plan. Less fluent performance Reduced ability to perform within matches Reduced adaptability	Reduced outcome performance levels	Direct negative effect on player performance and development
5 2	Avoid making mistakes Afraid of expressing themselves	Playing within themselves	
4 2 2	Slower understanding of information delivered Reduced understanding of expectations of them Players lack understanding of session structure	Reduced understanding	
3 1 1 1 1 1	Reduced intensity of players Drifting along in session Complete tasks to the minimum level Reduced effort within match situations Waiting for a change in the session Reduced application to rehab program	Reduced effort	
1 1 1	Further behind in next session Lack of improvement over time Learning is not as permanent	Reduced development rate	
3 1 1 1 1	Not approaching coaches for help Ignoring coach during interactions Staying away from coach Reduced feedback to coach Reduced confidence to approach coach	Avoidance of interaction with coach	Negative effect upon behavior/appearance
3 2	Mirroring negative behaviors Shifting behavior to childlike behaviors	Variable behaviors	
3 1 1	Negative body language Becoming more introverted in nature Becoming quieter in nature	Change in appearance of performers	
7 3 3 3 1 1 1 1	Increased experiences of stress Negative emotional responses to coach Mirroring of coaches' negative emotions Negative effect on player well being Excessive arousal level/nervousness Players have reduced patience Reduced morale	Negative emotional outcomes	Negative change in psychological/emotional state
2 1 1 1 1 1	Reduced player confidence Playing with incorrect mindset Self-blame for coach outcomes Take feedback personally Dissatisfaction with session Thinking their being picked on by coach	Negative cognitions	
3 3 1	Attempting to please coach over development Loss of concentration Extrinsic sources of motivation	Inappropriate focus	
3 1	Reduced motivation towards activity Losing a connection with the sport	Loss of motivation	
4 2 1 1	Enhanced focus from players Enhanced awareness of acceptable performance levels Optimised arousal levels Enhanced motivation	Enhanced player performance	
1 1	Develop ability to manage emotions Gain experience of future challenges/ professional game	Opportunity to develop	Positive outcomes

Figure 3.

8 3 2 1 1 1	Command style coaching Limiting players' ability to make decisions/ over-coaching Presenting answers to player too early Reduced Q&A Coaching Trying to play the game for players Trying to control the practice	Behaviors reducing player ownership of development.	Undesirable coaching behaviors
2 1 1	Reducing time for players to practice Jumping between activities too soon Poor timings within sessions	Disrupting flow of session	
2 2 2 2 1 1 1 1	Say things that you regret Conflict with individual players Avoiding coaching certain players Becoming more parent like towards players Giving dismissive responses Short nature Reject approaches Losing temper	Dysfunctional behaviors towards players	
6 4 1 1 1 1	Rushed decisions Thought process becomes clouded Trying to think of too many things at once Lose track of ideas Complete thought block Not following coaching processes	Reduced effectiveness of decision making process	Reduction in general coaching competencies
4 3 2 2 2	Focus on stressors Focus going all over the place Distracted by unimportant aspects Losing awareness of intended session outcomes Getting wrapped up in the emotion of match/situation	Inability to maintain focus on relevant tasks.	
2 1 1	Reduced ability to deal with problems arising Slower to react to problems Inability to consciously adapt along coaching continuum	Reduced performance flexibility	
2 1 1	Putting the blame for poor quality solely on the players Attributing failure to the referee Attributing failure to the weather	Dysfunctional attributions	
1 1	Delivering incorrect information Avoiding conducting of cool down	Reduced quality of support	
1 1 1 1	Seeming unapproachable Aggressive nature Unpredictable nature Lethargic nature	Reduced impression management ability	
1 1 1	Reduced amount of planning of sessions Less thorough with session planning Lower quality in service of balls to players	Reduced quality of organisational elements.	
4 3 1	Forget about player needs when instructing Reduced awareness of effects of behaviors on players' mentality Challenging players too far beyond current ability	Individual players' needs.	

2 2 2 1 1	Less awareness of holistic development Outcome focused and overlooking processes Short-term benefit decisions Prioritising winning preferred over development Trying to please boss over development of players	Long term development of players	Reduced awareness
1 1 1	Inability to detect changes in coaching style Reduced awareness of current experiences of stress Reduced awareness of behaviors	Reduced self-awareness	
1	Actions that go against your personal philosophy	Personal philosophy	
6 2 2 2 2 1 1 1 1	Unclear messages to players Mixing up words Attempting to delivery too much information at once Not breaking things down Not relating coaching back to the game Lower quality of explanations Unclear on expectations of players Lack of structure Not reframing information when it hasn't been understood	Reduced clarity of delivery	Reduction in quality of information delivered.
6 3 2 2 1 1 1	Withdraw from session Brushing over of points Not explaining potential outcomes to players Less hands on coaching Reduced demonstrations Not asking questions when appropriate Passing over to another coach	Reduced delivery of information	
1 1 1 1	Use of profanity Talking down to players Excessive communication/white noise Bad speech habits	Inappropriate communication habits	
6 2 2 2 1 1	Negative effect on support staff Lower quality of session Conflict with other coaches Conflict with parents Conflict with officials Creation of negative environment	Effect on environment	Negative effects upon wider elements
2 1	Reduced credibility with players Damage current relationship with player	Effects on coach-athlete relationship	
3 1 1 1 1	Reduced confidence to develop players Self-criticism Reduced confidence in ability to meet individual needs Reduced confidence ability to meet the situation needs. Not in the right mindset	Cognitive outcomes	Negative personal outcomes
2 1 1 1	Loss of emotional control Feeling of 'not on the ball' Loss of motivation Feeling flat	Emotional outcomes	
3 2 2 1 1 1	Increased arousal level Triggers awareness to change session Increased motivation Increased effort Increased ability to demonstrate expectations Increased respect from players	Performance outcomes	
2 1	Increased reflection on performance Use experiences to improve	Development outcomes	Positive effects