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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!

**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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22

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

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

Figure 2.

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

Figure 3.

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

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