Olympic and Paralympic Coaches Living with Stress – is it Such a Problem? Potential Implications for Future Coach Education in Sport.

Sports coaches work in a complex and dynamic environment that can lead to high levels of pressure and stress (Bowes & Jones, 2006; Fletcher & Scott, 2010; Lyle, 1999). An important aspect of this complexity is the way stress is recognized and dealt with (Olusoga et al., 2009). Whilst the impact of stress on athletes' performance has received significant attention (Gustafsson et al., 2017; Schinke et al., 2018), substantially less focus has been given to coaches, particularly those performing at the elite level (Dixon & Turner, 2018; Potts et al., 2021). This is perhaps down to the perception that coaches are often seen as the source of solutions as opposed to requiring help themselves (Frey, 2007). However, Thelwell et al. (2008) suggested that coaches must also be considered as performers in their own right and need the same level of help, support and research as the athletes in their charge. Therefore, further examination of the stressors they experience would be an important step. Consequently, there is a growing body of research looking at coaching in stressful conditions (Bentzen et al., 2017; Bentzen et al., 2015; Frey, 2007; Olusoga & Kenttä, 2017; Schaffran et al., 2016), alongside numerous high profile examples of stress and its negative impact on mental health and coaching performance (e.g., a football coach undergoing electric shock treatment to "cure" his panic attacks and suicidal thoughts; (Calvin, 2015). Given the environment within which elite coaches operate, it has been highlighted that coaches are often unable or reluctant to ask for support when experiencing stress through fear of appearing vulnerable or weak (Olusoga & Kenttä, 2017).

Stress has been defined as the "quality of experience, produced through a person's environmental transaction, through either over or under arousal, resulting in psychological or physiological distress" (Aldwin, 2009, p. 23). Thelwell et al. (2008) expanded on this, identifying that stress is caused by the on-going interaction of an individual with the environment they find themselves in and the decisions they make to cope with issues that may arise. Furthermore, Fletcher and Scott (2010) draw a distinction between stressors and strain. They view stressors as "environmental demands (i.e., stimuli) encountered by an individual" and strain as "an individual's negative psychological, physical and behavioural responses to stressors" (Fletcher & Scott, 2010, p.

128). Acknowledging that stress is a complex, dynamically changing phenomenon 'stress' in the current study is represented as an interactive process incorporating stressors, strain, appraisals and coping responses that could result in both positive and negative responses (Fletcher & Scott, 2010).

Considering the additional responsibility and stress that is exerted upon Olympic and Paralympic coaches (Collins & Cruickshank, 2012) it is therefore worth looking at stress from a coach's perspective, particularly as the studies discussed in this paper present a reasonably coherent narrative around the organizational (interaction with the coach and their environment; Woodman & Hardy, 2001) and situational (lived in the moment experiences; Albrecht, 2010) causes of stress. These include factors such as coaching responsibilities to the athletes, conflicts, pressure and expectations, managing the competition environments, athlete concerns, isolation, consequences of sport status, competition preparations, organizational management, sacrificing personal time, and long, irregular working hours together with extensive travel (Olusoga & Kenttä, 2017; Schaffran et al., 2016). However, with each coaching context being so different, it is difficult to compare individual experiences (Bentzen et al., 2015; Frey, 2007; Olusoga et al., 2010), which highlights the need for continued research into how world class coaches interact with stress, in order to explore commonalities and differences across contexts.

This interaction with stress was first conceptualized by Blascovich and Mendes (2000) who stated that individuals appraise stressful situations through either perceptions of danger or uncertainty and then assess their ability to deal with the situation through their knowledge and skill set, resulting in either challenge or threat responses. The challenge response would be where an individual experiences sufficient resources to meet situational demands, whereas the threat state would be considered maladaptive occurring when an individual experiences insufficient resources to meet situational demands (Dixon & Turner, 2018). Therefore, this study will investigate how individuals experiencing similar demands can exhibit very different responses, depending on their cognitive appraisals, as outlined by Dixon and Turner (2018). Indeed, Didymus (2016) noted that future research should work towards a better understanding of the ways in which high-level coaches cope with the competitive and potentially stressful environment in which they work. Furthermore, Potts et

al. (2021) in a meta-synthesis of qualitative research highlighted the lack of research on coaches' appraisals of stress and the potential impact stress may have on their mental wellbeing. With these points in mind it is also worth gauging how effective coaches' coping strategies are in managing the negative outcomes of stressors. Conversely, research of this nature may also lead to important insights into how elite coaches foster positive outcomes from the stressors they experience, thus providing potentially useful information to inform the development of novel applied coach stress management interventions. Such interventions could lead to enhanced wellbeing and a reduction in the large number of coaches who stop coaching each year (Potts et al., 2021).

Accordingly, the aim of the current study was to investigate the perceptions of Olympic and Paralympic coaches on 1) the stressors they experienced in the build up to the Tokyo Olympic and Paralympic Games 2) how they appraised these stressors, and 3) the coping mechanisms they used to mitigate stress.

METHODOLOGY

In view of the range and scope of stressors that Olympic and Paralympic coaches deal with, this study adopted a qualitative methodology through an interpretive approach as stress is experienced differently by different people and is influenced by a range of shared realities (Thorne, 2016). As such this study collated rich, descriptive data that portrays complex human experiences in line with a constructive epistemological approach (Fedyk & Xu, 2018). Qualitative research emphasizes the exploration of multiple contexts, experiences and gains insight to the different interpretations of the various sporting paradigms (Braun & Clarke, 2012). Semi-structured interviews (available on request to the first author) were selected to explore the topic area via the experiences of those who have first-hand coaching experience in elite sport. Using interviews encourages the selected participants to provide more in-depth information that captures the subjective meaning in contextual situations as well as providing the opportunity to delve deeper into personal lived experiences (Brinkmann & Kvale, 2008). The semi-structured nature of the interviews allowed for the addition of more probing follow up questions (Newcomer et al., 2015).

Participants

Thirteen coaches (mean age: 44.7 ± 6.3 years) working towards leading athletes and or teams at the Tokyo Olympic and Paralympic Games in 2021 volunteered to participate. The criteria for selection was the coach had to be working as head coach with athletes or teams that had either qualified or were in the midst of qualifying for the Tokyo Olympic and Paralympic Games. Of the 13 coaches interviewed 12 actually took part in the Tokyo Games (one coach changed roles prior to the Games and did not attend, although the athlete qualified and competed). Coaches were selected to cover a broad range of demographics, to reflect the diversity of coaching contexts within Olympic and Paralympic sport. These included individual or team sport (seven individual and six team), gender (nine male and four female), Olympic (ten coaches) or Paralympic Coach (three coaches), Great Britain (GB) (eight Coaches) or International based (five coaches) coach and multiple Olympic or Paralympic coach (ten coaches) versus first time Olympic or Paralympic coach (three coaches). These coaches were deliberately targeted (Lincon & Guba, 1985) in order to adequately reflect the broad range of experiences and contexts that Olympic and Paralympic level coaches are operating in. All identities have been anonymized. Any identifying data has been removed with coaches presented as coach 1-13.

Procedure

Ethical approval was obtained through the University ethics committee and suitable coaches were contacted via email, informing them of the purpose of the study and inviting them to participate. Signed informed consent was provided prior to data collection with a reminder that the coaches could withdraw from the study at any time. As we were discussing stress and potentially emotive experiences the participants were also advised that they were under no obligation to answer any questions that were potentially distressing. The semi-structured interviews were conducted via Microsoft Teams due to restrictions imposed by the COVID-19 pandemic. Interviews ranged from 56 to 136 minutes in duration (mean time: 82.0 ± 20.5 mins).

Interview Guide

The semi-structured interview guide was developed by following the recommendations from qualitative research (Kallio et al., 2016; Schubring et al., 2019) to gauge perceptions on the stressors coaches experience during the build up to an Olympic and Paralympic Games. These templates included questions, probing questions and stimuli to generate a depth of response. There was consultation with the research team to ensure that the interview questions were suitable for the nature of the research. This template was then used in a pilot study, conducted with five international coaches, to ensure the interviews provided rich data sets. This process helped to ensure reliability (Kallio et al., 2016), provided positive feedback from the participants and consensus within the research team that the interview structure and flow was coherent. A key alteration was to drop the use of mind maps as an aid in developing stronger reflective keys (Collins & MacNamara, 2012) as the interviews were conducted online and the process clearly interrupted the flow of the interviews.

Data Analysis

Interviews were recorded and transcribed verbatim before conducting a deliberate "reflexive" analysis of the data (Braun et al., 2019) using qualitative analysis software (QSR NVIVO 12) to help extrapolate the various overarching, sub and data themes. A "reflexive" approach (Braun & Clarke, 2018) of using both inductive (observation of new insights arising from the data, like self-doubt, as described by the coaches) and deductive (personal experiences based upon 15 years of professional coaching by the lead researcher alongside a thorough awareness of the literature base) analysis approaches was used to allowed for depth and quality of analysis and address the propensity to get tied to either ontological or epistemological approaches (Tracy, 2010). The researcher went through the process of familiarization with the data by reading and re-reading and adopted a thematic analysis approach. Then followed the assignment of codes based upon statements that contextualized each coaches' experiences with stress, before identifying a range of pertinent lower order themes, which were then grouped into higher order themes. These higher order themes were then built up to three overarching reflective themes (Braun & Clarke, 2018): 1) stressors, 2) appraisals and 3) coping strategies. To improve the trustworthiness of the data analysis three peer debriefing sessions took place with two other researchers. This process helped clarify the context and meaning behind some of

the codes created as well focus the scope of the data collected by reducing the number of sub-themes from 16 to nine (Smith & McGannon, 2018).

Results

The results gleaned from the data analysis reflect the thoughts of all 13 participants with a total of 892 raw data units being identified. These raw data units were then categorized from 46 lower order themes and then built up into nine sub themes and then into three general overarching themes that emerged from the data: stressors, appraisals of stress and coping mechanisms (Tables 1-3, respectively). The number (*n*) of responses for each data theme is highlighted within each table. It is important to note that the frequency of responses does not imply relative importance but portrays the commonality of feeling amongst coaches. Contributions by female coaches will be highlighted by F and male coaches by M.

Stressors

Table 1 illustrates the main stressors experienced by the Olympic and Paralympic coaches in the build up to the Tokyo Olympic Games and includes: coach athlete relationship, role responsibilities and lack of support in fulfilling their role.

Insert Table 1 near here

Coach Athlete Relationship

Data highlighted the levels of investment and the potential sources of stress experienced by the coaches in relation to the coach-athlete relationship. The data themes identified were the selection process, team/athlete management, prioritization of the athlete, behaviour management and communication. The examples below outline how coaches *prioritized athletes* so that they could perform at the highest level: “This is not a job, this is a lifestyle and we are choosing it because we love the sport so it is pretty much 24/7 because the athletes can need you at any time and I am there for them”. (Coach 10F)

Recognizing the burden that these coaches are taking on, there are examples that highlight some of the negative implications for this desire to support the athletes. For example, Coach 13M revealed, "We can be absolutely at capacity and they do not see you almost like a human. It is just you should be able to do this". The fact that coaches perceive themselves to be working at capacity and being fully invested in the process can lead to issues where it is felt that the investment is not reciprocated. This was highlighted by Coach 6M who admitted, "Where I feel as though I lose energy is if I feel that I am putting more into this team relationship than they are. So this is often accompanied with bouts of frustration".

Athlete management was frequently raised as a source of stress as highlighted by Coach 9F:

> She (the athlete) has the ability to treat those around her very badly and for me that has a massive increase in stress level. Yeah she can definitely make me feel utterly worthless like I have never felt before in my life.

Coach 10F highlighted their concerns around managing a team member during competition:

> We had an athlete with us who wasn't on the programme as such and has a bit of a vendetta against me so I had a bit of anxiety about how that relationship was going to be while we were out there.

While Coach 3M pointed out the fact that managing the group is more difficult when you have athletes who are striving for Olympic qualification or *selection*, "One big thing during the qualification period is that the other athletes can feel neglected. You still have to make sure that they feel valued and that takes up a lot of time and energy as well". Furthermore, Coach 3M's point raised the issue of *athlete management and selection* and the potential for stress that exists within this domain and was supported by Coach 2M: "I deselected a player who had played everything for the last 4 years and had been to an Olympic Games and also it was a player that I coached at my club as well and it was very stressful".

In addition, the coaches highlighted the role of communication. Coach 10F highlighted that discussing their stress triggers with athletes was a good way of developing trust and support in the relationship,

"I am much better now at recognizing some of those things where I try to not show that to my athletes as they can pick up on things now". Whilst Coach 2M offered, "We want to spend a lot of time on individual meetings improving communication channels," and Coach 4F recognized that *communication*, trust and respect was a two way street, "You have to have a give and take relationship with the players. You have to respect their voice as much as you want them to respect your voice". Other coaches discussed how their *behaviors* could impact the performance of their athletes. Coach 1M revealed, "You can have a big impact on the athletes with the way that you conduct yourself", with Coach 5M reflecting, "Of course I did not do things to make the players smaller it was just because my angriness, my passion was so high, but it was really only bringing a negative effect". This point was echoed by Coach 10F who was acutely aware of how their behaviours influenced their athletes,

> If I am spending all my time reading their body language and picking up on their emotion then they are doing the same back to me and if I am stressed and they are going to be wondering why I am stressed should they be stressed?

Role Responsibility

For this section, self-presentation, performance expectations, programme management, multiple roles, processes and Covid-19 were identified as data themes around role responsibilities. Despite the obvious importance of the coach-athlete relationship and the inherent stress that has been demonstrated by the examples above, the interviewed coaches were clear about their *expectations of performance*: "I have got the responsibility of trying to achieve the Olympic place and a result at the Olympic Games" (Coach 9F). While preparing their team or athlete for the Olympic Games a number of the coaches interviewed were also holding other positions of responsibility. These ranged from taking on a mentoring role (Coach 9F) to managing business interests (Coach 7M) or from coaching a club (Coach 5M) to working as a coach educator (Coach 4F). Linked to the *multiple roles* that coaches need to fulfil is the *programme management* which was a source of stress to some, "It can be overwhelming; it starts at home, through the planning, bookings, picking the flights, picking the

hotels, making sure the entries are in" (Coach 10F). Coach 12M had to manage their program on a tight budget whilst still targeting a medal:

> It's not a secret but Olympic (sport) for the home federations is not a top priority, not in the women's side, it is not a top priority they are looking at essentially how cheap can we do this and still win a medal.

Furthermore, Coach 3M felt that while having to balance the multiple responsibilities of the role, a coach also must *present themselves* in a certain way to show they are in control: "You are just second guessing everything all the time and worrying about other results that you can't really affect. So all the things that you tell the players not to worry about you are worrying about."

Coach 12M questioned why coaches have to present themselves in a certain manner: "I guess it's the hierarchical point at the moment where people don't want to show their vulnerability, I would imagine if a coach showed it, would that undermine them in the eyes of their athletes?"

In aiding the qualification process there is some calculated planning in order to, "Manipulate the qualifying system to your advantage." (Coach 3M) but it is not without its stresses:

> You have got a lot of pressure in trying to pick the right tournaments and when you start going to tournaments that you thought before were quite reasonable and then they turn out to be extremely hard tournaments, that puts a lot of pressure on your own judgement calls and also whether the players are still believing in you. (Coach 3M)

The *Covid -19 pandemic* of 2020 meant that long term plans and preparations were thrown into doubt, "We were getting ready to start our competition season, I think a week, two weeks before the sort of the lockdown kicked in for our guys" (Coach 1M) and Coach 13M highlighted the impact on their planning:

> We live in a sport where everything is planned meticulously, and we pride ourselves on that. Suddenly all of the goal posts and all of the planning is up in the air, you know, that creates a lot of anxiety and I am not immune to that.

Participants were also quick to point out the *various processes* within the role that were sources of stress. One of the factors of coaching is the sheer volume of time that is involved in preparing an athlete for the Olympic stage. Coach 9F said "On average I will spend 200 days a year out of the country coaching or training with my athlete". Coach 10F has to deal with this gruelling schedule:

> In the 11 days of competition for a Paralympic Games we are competing on ten of them and for an athlete that might only be a half-day at the competition and training venue, but for the staff that is a 16-hour day for ten days plus two weeks in advance training and moving and with being a Para coach it is about lifting and shifting.

With training camps and the Games being stressful in terms of time demands, qualification for the Olympic Games is fraught with tension and pressure as Coach 7M describes; "I think most of the people that are involved in the Olympics will tell you that the Olympic qualifying process is the most stressful part of the process." Coach 3M highlighted the importance of four years of work, "For me I think the qualifying process is more stressful because that is why you are working for four years."

Coach 2M considered the implications of not qualifying:

> If we do not qualify for the Olympics it is kind of over in terms of the team, the players preparing for the Olympics won't keep playing for the National Team, I would probably not continue as Head Coach of the National Team. So, the consequences of not winning the double header was present in my mind.

Lack of Support

Several coaches highlighted the perceived lack of support as a source of stress and the main data themes identified were conflict, issues around travel and competition, the role of the National Governing Body (NGB) and resourcing. NGBs appear to be a source of stress for these coaches as political and financial constraints seem to be at odds with what is important to the coaches and their priorities:

> For me it's a constant source of stress. I think I would probably position myself as middle management so there are people above me who are really responsible decision makers with different agendas as I see it and to try and influence them enough to get my agenda onto their desk so that we get decisions that I think would help our sport is really difficult. I would probably say that is the biggest source of stress for me. (Coach 6M)

Coach 9F agreed, identifying: "One frustration with the team is that all of my discussions with the Olympic Manager seem to be about money and not about medals".

Coach 3M provided the following unpleasant experience based upon political interference with the qualifying process:

> We qualified two players but our own International Olympic Committee (IOC) had different qualifying criteria, they had stricter qualifying criteria, so both the players never got to Beijing even though they had qualified through the World Federation criteria.

These examples highlight the potential for *conflict* which is compounded when you work with Team GB and the Home Nations (England, Ireland, Scotland and Wales) don't have a vested interest in the success of the program:

> The journey has been a fraught one for the programme because if I am being candid and honest about this one it's very difficult now for any of the Home Nations. None of the Home Nations gets any funding from UK Sport because they are not GB Programs. (Coach 11M)

Pertinently, some coaches do not feel that they receive the same level of *resource* as the athletes: "All the provision (mental health) is around athlete and there is a whole athlete support team and we are almost, not catered for within that" (Coach 10F). Coach 10F then raised the question of how and when do coaches know how to call upon this support: "The difference is when the coach is suffering, a) Are they going to go and ask for help? b) Where to go to ask for help? And c) Do they actually realize that there is a need for help?"

The reality of being in a *competitive situation* and facing stressful situations without the proper support mechanisms was highlighted by two coaches: Coach 12M revealed; "You plan for everything down to the minute but you need to be ready for those plans just to get blown up and something to go wrong and you deal with it". In addition, Coach 10F acknowledged:

> I did not cope well in Holland, that's why I came home. I think one of the reasons that I didn't cope very well is that I thought that I felt that I didn't have access to my normal coping mechanism.

Appraisal of Stress

Table 2 illustrates how Olympic and Paralympic coaches appraised stressors as either positive or negative in the build up to the Tokyo Olympic and Paralympic Games.

Insert Table 2 around here

Positive Stress

When discussing responses to stress it was interesting to note that the coaches had highlighted numerous examples of their positive experience with stress, which included the identification of focus, decision making, enjoyment, motivation and acceptance as pertinent data themes. Firstly, there were a number of examples of coaches citing stress as a catalyst for *improved focus*, as highlighted by Coach 4F: "I believe that stress can make you make mistakes but in my case it just gives me much more focus". Coach 7M added more context around the focus required to compete at the top level:

> My experiences at the international level and trying to find these real small margins because everybody is so good. So what are the details of this? I am really hyper focused on this and I spend all summer trying to beat Poland, Russia, France and Brazil, all these great teams.

On top of the focus others talked about the improved quality of their *decision making* under stressful conditions. For example, Coach 6M said, "These decisions, this quickness of taking decisions is not something that I decide before. I just believe it is the monomaniacal focus on the moment". Coach 2M added to this by suggesting, "The greater the stress the more concentrated I am

on the decisions I am taking. It helps me focus on the things that I do control". Apart from the focus and improved decision making it was apparent that a number of coaches took a great deal of enjoyment from stressful situations, "I love the test and the difficulty and the struggle, you know!" (Coach 11M). Coach 12M went on to highlight the benefits of harnessing the motivational power of stress, "You then start to realize that stress used in the right way can be a big advantage". Coaches 7M and 12M offered the following analogies for using stress as a *motivational* tool: "You are only getting stronger when you break stuff down you know?" and "to grow there has to be struggle." Significantly, there were numerous examples where the coaches *accepted the presence of stress* within their job and have embraced it. Coach 6M summarized this, "The stress is there so I do not feel like this is part of the problem. I want the stress, you know? So I do not fight against it!"

This notion of making the best of things was pervasive across the coaches interviewed and COVID-19 provides good insight into how these coaches take the positives out of potentially stressful situations: "This COVID thing is not affecting me, beside the workload, the stress of COVID no way man I am dominating this" (Coach 7M). Another coach pointed out the fact that in what should have been an extremely busy time for them is now much more relaxed and *enjoyable*:

> With this Corona thing I have actually been more relaxed that I have been in 15 years at this point of the year. So for me I would not say it is a holiday but it is a time to work without pressure. (Coach 6M)

As well as the points raised around preparation a few coaches were eager to point out the positive impact COVID-19 has had on their planning: "I have got a higher workload because of it yes, we need to work on the strategy but I am definitely going to have plan ABC so I have got that possibility or opportunity of moving, whatever direction" (Coach 13M).

Negative Stress

Despite the incidents of positive stress the impact of negative stress presented itself in a number of ways and more frequently. Key data themes highlighted were physiological, anxiety, lack of control, job security, conflict, work home interference (WHI) and self-doubt. Firstly, coaches discussed some

of the *physiological impacts* of stress with Coach 1M providing this honest assessment of their experience: "It made me really poorly. I had a mini stroke and ended up seeing a councillor because I was having lots of panic attacks due to stress". Less serious examples included, Coach 7M identifying a lack of sleep, " I just would not sleep, I would have disrupted sleep and I would wake up in the middle of the night and be wide awake", and Coach 6M revealing "What I feel in my body when I'm nervous before a game, the physical aspects of where I can feel it in my throat and in my stomach, it's been the same always." Whilst Coach 2M said, "I do get migraines a bit which I think could be stress related." Along with the talk of nerves some coaches were affected by anxiety, "I was falling apart because you were so anxious about it all". (Coach 11M)

Furthermore, another component of negative stress was a *lack of control* in certain situations. Coach 8F suggested, "When I have got too much on the plate and I am always just chasing my tail and never really feel that I get things done." This point was supported by Coach 13M, "I get stressed out if I cannot move forward. I'm kind of action orientated so if I do not feel that we are moving towards a goal that then starts to stress me".

Job security was another source of negative stress identified. Coach 10F provided this insight around a lack of clarity on performance expectations, "I think that is one of the challenges what is a coach judged on? How am I rated? How am I assessed? If I have got good athletes and then they don't perform does that reflect on me?" Coach 2M provided a comparative analogy:

> My daughter said to me when I was younger, we came last in a tournament, she said are you going to be sacked? Because with a football manager that is what the TV or my father in law, who is a Barca fan, say when the coach is no good he has to be sacked.

Coach 8F had this to offer, "There is a lot of uncertainty from that point of view, I need to have a plan ABC just in case, let's say from 1st of April I do not have a job." Whilst Coach 10F commented on the power that the athlete has in determining the coaches future:

358 It is hard because the athletes have a huge amount of say in the hiring and firing of coaches.
359 Rightly or wrongly being fired by an athlete can have massive. It's not just the end of that
360 relationship it can have huge knock on effects of where you can go and work in the future.

361 With the sort of dynamic being described it was not surprizing to see examples of *conflict* being
362 mentioned by the coaches interviewed, as highlighted by Coach 7M, "I used to clash a lot with a
363 member of staff". However sometimes this led to a change of vision and leadership with negative
364 consequences: "Obviously, I had a big setback as well, we won the World Champs with this young
365 guy and the next thing you have got a new head coach and you know, they take away this athlete from
366 you." (Coach 9F)

367 Away from coaching the impact of *WHI* was a frequent source of negative stress, "It is not
368 perfect, we still go through times where it has been hard at training then we come home and it is not
369 happy families" (Coach 6M). This is exacerbated when the coach tries to compartmentalize their work
370 and their home life:

371 One criticism from my wife is I do not really talk about my work that much to her because
372 that is me very much just kind of boxing it off and putting it away. When I come home it is
373 like I do not talk about it because then if I start talking about it I will probably start getting a
374 bit stressed by it and anxious and annoyed and I do not want to. (Coach 12M)

375 One of the realities that faced a lot of the coaches interviewed was the amount of time that
376 they were expected to be away from home: "I say to my husband do not expect to see me much this
377 year" (Coach 10F). Whilst Coach 9F is away from home 200 days a year and Coach 11M over 120
378 days.

379 The final aspect pertaining to the responses to stress was the incidences of *self-doubt*. Coach 8F gave
380 this example:

381 Bad stress is when it builds up and it mounts and it ends up triggering a negative emotional
382 response and unhappiness. When it is bad it exhibits in lack of confidence and self-doubt and
383 that kind of thing, that's bad stress when those things start to happen.

Other coaches weighed in with the following examples of self-doubt: “It sounds ridiculous, but I compare myself, am I coaching as good as the other coaches are coaching? Are my athletes getting the right level of support?” (Coach 12M). Whilst Coach 11 said, “I have had far too much self-doubt and not backed myself!” and Coach 4F echoed these thoughts with, “I worry about not being good enough to be able to take them to where they need to be”.

Coping Mechanisms

Table 3 identifies the coping mechanisms utilized by the Olympic and Paralympic coaches to help mitigate the impact of stress including: self-determination, education around stress, community of practice and recovery strategies.

Insert table 3 near here

Self-Determination

The main themes around self-determination were the learning process, resilience, philosophy development, education, reflective practice and rituals or superstitions. Having ownership of the *learning process* and the desire to continually develop through *formal and informal educational* pathways, even if it meant being out of their comfort zone was seen as being important:

> I found myself in a Continuous Professional Development (CPD) group really, where you were forced to coach your peers, and at that point I perceived my peers as being way above me and I felt so uncomfortable. But I just got really comfortable with being uncomfortable and just kind of, almost, like diving in and going right! But the learning I got from that was absolutely massive and as uncomfortable as it felt that was really important. (Coach 13M)

Dealing with setbacks was apparent from speaking to some coaches. This is linked to the earlier points around *resilience* and acceptance that stress is part of the job. Coach 6M provided an example of how they use setbacks to motivate and develop themselves:

I do not know if there has been a coach that hasn't experienced failure, so I would say probably reflect on your failures because I think they fuel the fire and are the best times that you can really find your blind spots.

Coach 13M built upon Coach 6M's comment by highlighting how reflection and a clear *philosophy* can aid development:

Which again links into your coaching philosophy around individualised development, not just technically but as a holistic person. But then also understanding me better within all of that as well, has definitely helped strength and weaknesses and all the rest of it.

In terms of coping strategies there were a few coaches that described some *superstitions or rituals* they have before competition, in order to reduce the feeling of stress:

Each one of us have our rituals, for example, before big, big matches, I am very silent, I like to do some physical activity, I like to wake up early, I like to try and rest between lunch and the match as much as I can. I like to stay alone, even when I enter the gym. I hate the chatting before a big match because it brings nothing always. It is just increasing the fear. So I try and be pretty fixed in my rituals before every match, that is the most important. (Coach 5M)

A major factor in the coping strategies of these coaches is their *reflective practice*: "The big loss gives the biggest lesson you know? So the mistakes that I did before, maybe because I have overreacted with a player because of over stress" (Coach 7M). Coach 6M talked more about the processes involved:

I would not say a drain on energy, but it is really energy consuming. What I found myself doing is going home and really trying to replay and analyse what happened. What I did? How they responded? What I could have done differently? What could I do? Where are we? How can we move us back on track etc.?

The unpredictability and uncontrollable nature of sport means that the coaches have to be *resilient* and able to deal with setbacks. The examples below demonstrate the various ways in which the coaches are able to rationalize setbacks and focus on the process rather than the outcome:

> To be honest it does not matter where we finished, I was always determined to come back stronger next year so that is my mantra going forward. It does not matter how good the results are, next year is going to be better. (Coach 8F)

> I definitely think that knowing you have prepared the best you can gives you more confidence that the outcome will be as good as it can be and if you don't get the outcome the first thing you do is you look back and was the preparation right. I guess getting the preparation and working hard on the preparation will reduce the anxieties. (Coach 11M)

Education around Stress

The discussions with the coaches in this study highlighted a lack of information around stress, ideas for development, suitability of educational programmes and experience as key data themes. The *lack of information* around the impact of stress on performance was highlighted by Coach 4F:

> It is a really important element of coaching. When I think about the content of coaching courses there is very little that talks about managing stress. We are not talking about coach burnout here; we are not talking about when you get past the point of managing it. But are you actually aware of what you are going to do for you to make sure that you are at your best?

This was echoed by Coach 7M who when asked about the need for more information and support to deal with stress, offered the following:

> I was talking with another coach and we were talking about some of these topics and he said, "you know at some point here somebody is going to have to wise up and realize that these resources need to be available to the coach and the stresses that we are under".

Coach 5M acknowledged how coach education seems to focus on the technical and tactical elements: "In every coaches clinic we talk too much about technique, we talk too much about tactics that are the

easiest things. But being motivated in the tough moments this is what we should be taught more." The perceived *lack of suitability* for purpose was raised by other coaches including Coach 6M:

> I think this is really required all the way through coaching. If you are coaching a junior league team and you're passionate about it, that is going to take up a lot of energy and I think it is going to potentially be a stressful thing for you and the people around you. So a discussion around stress, burnout, coping is essential.

In the UK coaches were able to access a range of *development programmes* including "Para Coach to Rio" and "the Energy Project" (Coach 10F), the UK Sport "Elite programme" (Coach 11M & 13M), the "Aspire" programme (Coach 8F) and "the athlete to coach course" (Coach 10F). Whereas the picture for coaches internationally relied more on *experience*, "A lot of my best coaching advice has been unofficial rather than official" (Coach 3M), with Coach 7M offering, "It is probably not really something I have tapped into to be honest". Coach 6M offered a potential reason for this, "I have not been involved in coach CPD for a long time. But I think an overhaul of it to really address this sort of the theory, practice disjoint". Coach 13M elucidated upon the impact the CPD opportunities had on their relationship with stress:

> Being able to see the world from other people's perceptions… the more that you can do that to put things into perspective, to get that shared understanding that other people have the same challenges, see you have the same stresses. It is normal.

Community of Practice

The coaches in this study appeared to place how importance on the community of practice that surrounds them, with 11M of the 13M coaches citing the involvement from *professional practitioners* like psychologists and coach developers in their support network. Coach 10F summarizes this dynamic, "We have got a really good relationship and I trust him and I can open up to him so the relationship is already there I think". The role of family and friends was also viewed as very important, "I can see how valuable my friends and family are that you are keeping those people central" (Coach 1M).

The role of *mentors*, both informal and formal, were also core to the coaches development as well as a confidant in times of stress. Coach 13M highlighted that "The use of mentors through your life as a coach to help you sense make, conceptualize and then to put that into your context is key". This is exemplified by Coach 10F: "The mentor, through the UK Sport programme, he is pretty much great, he opened my eyes and I started to be more aware of things which at the time of going through it I wasn't aware".

The nuances of the *support network* were varied and very context specific as Coach 13M demonstrates, "Because I have got two hats, I have got my leadership hat and I have got my coach hat so I am working with two different people. So I am working with a different person on my coaching and different person with my leadership." Coach 6M spoke about the importance of having someone objectively monitoring your behaviours and stress levels:

> You need to find a way to monitor stress. Maybe have someone around you that will tell you if they think you are stressed or short of energy or run down. You need to learn what your reactions to stress are and be mindful of them.

As a final point Coach 1M provides a good example of how the support of *friends and family* are crucial to personal and role fulfilment, "I guess I can see how valuable my friends and family are in helping me pursue my own goals, whilst at the same time giving me the break away from the pressure of my work and keeping me grounded."

Recovery

Recognizing the stress of their role many of the coaches in this study offered insight into their recovery strategies, as highlighted by the data themes of exercise, social activities, family time, medical professionals or adopting tools to aid mental health. Primarily amongst these was the use of *exercise*, which ranged from, "I like walking in the Scottish hills" (Coach 8F) to "I go cycling a lot. That is my main de-stressor actually" (Coach 10F). Similarly, Coach 13M gave some insight as to how they use exercise to process their thoughts:

I have always used exercise. So it was a mixture of gym and cardio type stuff. Where I just go for a run and for the first 30-40 minutes I would be making sense, verbalizing, self-talking, conceptualizing, working through the issue and by 30-40 minutes I would almost resolved it in my head and was like ah right I am in a good place.

In terms of recovery the coaches provided a broad range of activities including Yoga, home renovations, music and reading. However, some coaches made time for *social time* to aid their recovery ranging from going to the pub (Coaches 1M, 3M & 9F), going to the cinema (Coach 1M & 2M) and going to watch football matches (Coaches 3M & 4F). Many of the coaches highlighted the importance of *family time* as the main source of grounding or taking their mind off the job, "I always, when I am here, spend a lot of time with them because I understand that there are periods of time when I am away from home" (Coach 12M). Coach 6M offered the following: "I have got a son, he makes it quite easy to turn off because a two year old does not understand I have just got to send this email without him wanting to do stuff".

In addressing the more serious implications of stress a couple of coaches turned to *medical professionals* and psychologists to aid their recovery, " I had to have some time off and lots of help from my GP and that sort of thing. That sort of then helped me get on top of that because I had clearly been doing too much" (Coach 1M). Coach 10F provided another example of the use of medical support: "I suffered from post-natal depression and when that kind of depression and anxiety resurfaced so then I had to go back to the GP, medication and Cognitive Behavioural Therapy (CBT) to manage any irrational thoughts".

Along with the likes of CBT the coaches interviewed have developed a number of *tools that they use to mitigate the impact of stress* in their role. Coach 1 highlighted the importance of a good work life balance, "Work life balance is out and out number one!" This outlook was supported by Coach 12M who offered this strategy, "I have started turning my phone off after 6 so that I am not constantly checking WhatsApp or emails." Whilst Coach 13M offered, "when I am home I make sure that we plan activities with the kids to make up for the times I am not around." Another tool discussed by

several coaches was developing a clear philosophy and sense of perspective, as highlighted by Coach 6M:

> Being really clear on what your purpose is and what you want to achieve out of it because that then kind of gives you that's what I am heading towards so that is where my energy goes and you are not getting pulled in different directions.

Discussion

The aim of this study was to explore how Olympic and Paralympic coaches appraise stress as they prepared their teams or athletes for the 2020 Olympic and Paralympic Games in Tokyo. Importantly, our findings highlight that coaches are required to deal with a broad range of psychological, physical and emotional challenges (Mallett, 2011). Often these challenges seem to exist in potentially contradictory paradigms, for example, the athletes' being the primary source of stress but at the same time stating that the athletes needs are more important than the needs of the coach (Coaches 1M,8F,9F). However, our findings provide novel insights in four key areas by 1) identifying how coaches appraise stress, 2) examining how the appraisals of stress are fuelled by factors like self-doubt, perfectionism and imposter syndrome, 3) identifying coping strategies to negate the impact of stress and 4) the role coach education plays in preparing coaches to deal with the stress of the role.

A number of the coaches interviewed in the current study framed stress as a positive influence in terms of focusing attention and speeding up the decision-making process (Coach 3M,5M,7M,13M). Consequently, the acknowledgement that stress is part of the job and embracing the somatic and psychological effects (Coach 5M), reframes the idea that stress is largely viewed as negative in coaching (Norris et al., 2017). This could be construed as a 'coping' mechanism highlighting that incidences of stress having a positive impact on performance (Didymus, 2016). This positive view of stress may go a long way to explaining why the elite coaches in the current study exhibited high levels of motivation, self-determination and low levels of burnout (Bentzen et al., 2017). Despite most of the coaches interviewed in the current study raising a number of negative stressors associated with their

557 job (e.g., time away from home, job security, anxiety and self-doubt), they remained highly motivated
558 and were looking forward to the opportunity to be part of the Olympics and Paralympics.

559 With this in mind, a potential mechanism explaining the high levels of motivation of elite Olympic
560 and Paralympic coaches in the current study was the coach-athlete relationship. Many coaches
561 prioritized the athlete over their own needs (e.g. making themselves available 24/7, Coaches
562 1M,8F,10F,13M). Despite this, 76 different raw data units pertaining to largely negative examples of
563 the coach-athlete relationship were identified. These being perceived lack of control, poor
564 communication, self-presentation, vulnerability, loyalty and entrapment which aligns with previous
565 work by Olusoga and Kenttä (2017).

566 Lara-Bercial and Mallett (2016) highlight that elite coaches seem to be predisposed to living on the
567 'knife-edge' of belief in their own ability whilst simultaneously doubting if they are good enough to
568 ever win again. Indeed, several of the coaches interviewed for this study seemed to present symptoms
569 of self-doubt (Coaches 1M,3M,6M,9F,10F), insecurity (Coaches 1M,8F,9F,10F) and imposter
570 syndrome (IS) (Coaches 3M,4F,9F,12M). Symptoms of IS can manifest as anxiety, self-deprecation,
571 or an irrational fear of failure in light of previous success and perfectionism (Bernard et al., 2002).
572 This will see coaches adopt a lone fighter strategy (Olusoga & Kenttä, 2017) which can lead to
573 impatience, inability to delegate, inability to recognize performance constraints and identifying
574 success or failure with winning or losing competitive situations (Altfeld et al., 2018). Similarly,
575 perfectionism is moderated by various factors such as anxiety, goal orientation, fear of failure, self-
576 esteem, performance success, self-presentational concerns, and coping strategies (Flett & Hewitt,
577 2005; Schaffran et al., 2016). In a profession like coaching, where there are high consequences for
578 winning and losing, or a risk of losing one's job, it is not surprizing that coaches exhibit some of these
579 traits. Interestingly, this study suggests these coaches have developed a number of strategies (e.g.
580 awareness of how they communicate verbally and non-verbally to athletes (Coaches 5M and 10F). Or
581 depth of planning to maintain control of their situation (Coaches 12M and 13M) linked to self-
582 presentation that hide these insecurities. This is aligned to Flett and Hewitt's (2005) work on
583 perfectionism and involves striving to create a public image of flawlessness, either by highlighting

584 one's success (i.e., perfectionistic self-promotion) or by minimizing one's mistakes (i.e., non-display
585 or nondisclosure of imperfections). These characteristics are often underpinned by setting exceedingly
586 high, perhaps unrealistic, standards for performance, accompanied by tendencies for overly critical
587 self-evaluations (Stoeber, 2015). Whilst causation does not mean correlation, in unearthing this
588 phenomenon in a number of coaches it would therefore be worth future investigation as to how stress
589 and perfectionism interact in terms of coaching performance.

590 The counterpoint to the negative appraisals of stress came from coaches who demonstrated high levels
591 of self-determination and behaviours aligned with Bentzen et al. (2017) who posited that coaches with
592 higher levels of motivation and self-determination were less likely to suffer from stress. Self-
593 determination within the workplace links to the job-demand-control-model developed by Theorell et
594 al. (1990), which describes working conditions where excessively high demands, in combination with
595 low control and weak support, create stress responses and tension that over time might lead to
596 psychological or physical health problems.

597 A key aim of this exploratory study was to gain insights into how well elite coaches have been able to
598 develop strategies utilized to mitigate the stress of their role. It is apparent from the data that many of
599 the coaches interviewed struggled to disengage from the coaching process. Some coaches also
600 highlighted the fact that even during family time they continued to think about coaching. Furthermore,
601 sleep patterns being disturbed was a frequent occurrence and in at least two examples coaches
602 developed more severe conditions directly linked to the stress of their job. Schaffran et al. (2016) go
603 on to suggest that intervention programmes which are utilized from workplace research do not exist
604 with regard to coaches, yet there are a number of examples that could transfer into the coaching realm.
605 For example, CBT, psychotherapy, counselling, adaptive skill training, communication skills training,
606 social support, relaxation exercises or recreational music making (Awa et al., 2010; Potts et al., 2021).

607 Whilst these potential mental recovery strategies appear to have positive effects, the coaches in this
608 study supplemented these approaches in a number of ways. The use of physical activity, a sense of
609 perspective and positive outlook and support networks were all prevalent in this study with physical
610 activity being the number one stress release mechanism cited by the coaches interviewed. With

611 consideration of the job-demand-control-model (Theorell et al., 1990), it would also be worth
612 considering a longer time frame of rest (e.g., rest days, off-season periods), or "switching off". An
613 effective approach to this could incorporate a change of focus onto other domains (e.g., family, social
614 life) outside of their own sporting context (Loch et al., 2020). As this study was conducted in the
615 midst of the pandemic, coaches were forced into having a break from their preparations for the
616 Olympics and Paralympic, and, as a result addressed some of the potential work-life balance issues
617 that would exist in an Olympic and Paralympic year. The notion of changing domains is interesting as
618 WHI is a process in which conflict could arise as a result of roles that affect time based in one domain
619 (e.g., work) and that are incompatible with fulfilling roles in the other domain (e.g., family: Bakker et
620 al., 2004). Clearly, this definition transfers into the realm of coaching where coaches are often
621 expected to put in long hours or be on the road for extended periods of time. Furthermore, Lara-
622 Bercial and Mallett (2016) highlighted how much coaches paid attention to, or at least attempted to,
623 maintain a relative work-life balance and ensured that their physical and mental health, alongside their
624 personal relationships were maintained. This study highlighted the importance of a positive work life
625 balance particularly in the midst of the pandemic where the boundaries between domains were further
626 blurred due to lockdowns. So far, this section has focussed upon individual ownership and
627 responsibility of mitigating the impact of stress on performance and welfare. However, there has to be
628 some examination of the role that NGBs play in creating an environment where coaches often report
629 that perceived lack of control over things like resources, equipment, funding, how programmes are
630 run, time away from home and their future career prospects cause them considerable stress (Kilo &
631 Hassmén, 2016). When you then consider the "politicization of sport", streamlining of funding policy
632 and the "playing to win" mentality that exists within sports policy (Grix & Carmichael, 2012), all of
633 which exist outside the realm of control of the coach, NGBs need to do much more to support coaches
634 by investing in coaches wellbeing (Fletcher & Scott, 2010). Historically it has been assumed that
635 coaches have all the answers and are therefore left without the same resources that athletes are
636 afforded (Rynne, 2017). This point becomes more important when you consider coaches appraisals of
637 organizational stressors are going to have implications on their well-being, coping strategies and
638 performance (Woodman & Hardy, 2001).

By drawing on some of the insights gained from the current study, it is worth discussing the implications for coach education moving forward. The professional standard frameworks (ICCE & CIMSPA) have subsequently raised important questions around the effectiveness of how coaches are engaged and developed at all levels. Indeed, the demise of the UK Coaching Certificate (UKCC) began when The Coaching Plan for England…? (2018) highlighted a number of recommendations with regard to the UKCC, which is deemed to no longer reflect the core needs of coaching. One of the significant gaps in coach education, not addressed by The Coaching Plan for England…? (2018), is that of mental health and the impact of stress on the performance of coaches. This point is echoed by a number of coaches in this study who stated they had received no support or information around stress and mental health through formal educational or CPD channels.

Whilst the coaches in this study developed their own coping strategies based upon their context, experiences and community of practice, where there is a shared interest, passion, commitment and competency base (Stewart, 2012), many coaches may not have the skills to recognize stress and how it affects their behavior. There is now a move to develop coaches with behaviors, values and attitudes, the so called 'soft' coaching skills like empathy (Coaches 3M, 9F), inclusion (Coach 8F), mental health and wellbeing (Coach 7M), within their own context, as a priority (Sport England, 2016). With these points in mind, coupled with the lack of clarity in explaining how effective learning happens for practitioners from a variety of contexts (North, 2010; Stodter & Cushion, 2016), a large proportion of coaches gain their knowledge and practice skillsets, not through coach education, but from personal interpretations of previous experiences (Cushion et al., 2003). A move to a context specific, values based approach in coach education may help address the lack of clarity on how coach education and CPD should be structured and supported (Griffiths et al., 2018). At the same time this approach could help address the levels of stress that coaches experience in the elite arena (Didymus, 2016) by affording them the necessary training and resources to deal with stress at an elite level.

A potentially critical point raised by the coaches in this study was the impact of mentors and coach developers in developing the community of practice and being a sounding board for dealing with the various stressors encountered on a day to day basis. The relationship with a mentor, coupled with the

reliance on their coach developer as a support mechanism, as well as part of the coach community of practice, has had a big influence on coaching behavior and performance (North et al., 2020). Many performance programmes globally have utilized coach developers. They play an important supporting role for the coaches by facilitating the appropriate mix between informal, non-formal and formal learning as well as providing one-to-one support, mentoring and a 'buffer' against the isolation that many coaches feel (North, 2010). Many coaches from North's (2010) study experienced isolation and have negative experiences of formal coach educational settings. This could be in terms of the consistency and quality of delivery and a perceived lack of support from coach educators (Stoszkowski & Collins, 2012) meaning that NGBs are not utilizing mentoring schemes which could be a potentially positive tool in supporting their elite coaches. Dohme et al. (2019) highlight the importance of the coach developer in engaging the coach with long term learning by being available, approachable, and supportive, and creating a sense of belonging. Aligned to this, this study provided some insight into the dynamic of mentoring and the use of communities of practice in mitigating the impact of stress. The formal mentors or coach developers, accessed by the coaches in this study, offered advice or guidance about the impact of stress on coaching welfare and performance. Whilst there were also informal structures presented like "buddy systems" and "critical friends" who were empowered/trusted to be candid about how stress was manifesting itself and impacting on coaching behaviours. Based upon the discussions with the coaches in this study and the existing literature around the role of the coach developer, it seems to be a trend that coach developers, or indeed communities of practice, are having to fill the gap between the lack of suitable, context specific, coach education and the support network that exists for elite level coaches (Dohme et al., 2019; North et al., 2020; Stodter & Cushion, 2019). These support mechanisms become all the more important when you are considering the recognition of stress within the elite sphere and the ability to develop the skills to mitigate the impact of stress in a context specific rather than generic manner.

Looking at the specific context of supporting and developing female elite coaches Norman (2012) calls for more equity in order to elevate female coaches and leaders. This point becomes especially important when you consider research by Kenttä et al. (2020), where they state women have to adopt

male stereotypes in order to survive in the performance field. Additionally, Kraft et al. (2020) have proposed women-only training programs in order to tackle barriers for women coaches. These include the lack of organizational support and access to training and development opportunities, and the lack of female role models for networking and mentoring support. However, despite only providing a small sample size, the female coaches interviewed in this study all reported good access to support via coach developers and UK Sport funded CPD and development opportunities. It is also encouraging to see coaches (e.g., Coach 9F in the current study), recognize the lack of female coaches and offer to provide mentorship and act as a positive role model to female athletes and potential coaches in their charge. This is aligned to Norman's (2012) assertion that a first step in the empowerment of women is to enable them to become national coaches making it clear that coaching is a valued, worthwhile and accessible profession for women thus increasing the visibility of existing high-performance female coaches as role models. This sort of approach might go a long way to mitigating the increased isolation that some female coaches (e.g., Coach 10F in the current study) feel, in spite of having access to support mechanisms. This may be due to their predisposition to prioritize relationships, increased sense of guilt around balancing career and homelife, emotional exhaustion and anxiety (Potts et al., 2021). Certainly one of the female coaches that took part in this study demonstrated high levels of guilt around leaving her family at home for extended periods of time. Others discussed heightened anxiety around the potential negative interactions with their athletes. The task is then for coach education (both formal and informal) to prepare coaches for this eventuality rather than trying to deal with the fallout retrospectively.

Limitations and future research

In part, as a consequence of the limitations (i.e., context, time specificity leading to a delayed games) there are two methodological limitations worth considering within this study. Firstly, the coaches interviewed provided one-off, standalone accounts that could only provide a snap shot into their world. This could lead to a lack of contextual considerations, such as socio-economic statuses of the sports and the expectations on them to deliver medals to maintain funding (Bostock & Breese, 2021), which could influence the outcome of our findings. Consequently, future research could consider

adopting a critical realist lens, that would allow for the consideration of social structures, biases (both conscious and unconscious) and institutional norms (Byers et al., 2021). The use of critical realism could lead to a better understanding of the role that NGBs play in creating a culture where coaches are expected to operate and thrive in an environment which is unsustainable in terms of demands on time, energy and resources. Another limitation is related to the female participants as the findings are based upon a small cohort and do not address whether or not stress and lack of education and support have a part to play in this dearth of female coaches at an elite level (Norman et al., 2018). Finally, in terms of future research, the issues raised around IS were not explicit in the aims and objectives of this study and such the link between perfectionism and stress within coaches needs further consideration.

Conclusions

In conclusion the current study provides novel and original insights into how stress manifests in Olympic and Paralympic coaches and discusses the various coping mechanisms commonly used to mitigate the impact of stress on their performance. Specifically, we have identified that while elite coaches face a broad range of psychological, physical and emotional challenges their appraisals are incredibly individualized and context specific. As such, the way elite coaches frame stress can be a positive mechanism for improving focus, decision making and could have an impact on the way we associate stress as a negative and something that needs to be reduced at all times. NGBs and coach educators need to be cognisant of the context specific stress that elite coaches are under and provide them with the same resources and support that is available to the athletes operating in this space.

The second novel finding was around the issue of IS, perfectionism and self-doubt all of which help fuel negative appraisals of stress. As such it is vital that coaches develop, and are supported to develop, higher levels of self-determinism in order to counteract the high demands of the role. Ultimately this could also help address a significant source of strain which was the potential for the breakdown of the coach-athlete relationship. There has been very limited research done in relation to IS and stress appraisals and would therefore merit further investigation.

Thirdly, the coaches in this study demonstrated that a strong exercise regimen in conjunction with high levels of self-determination, motivation and an ability to manage a good work-life balance were all identified as important in terms of building strong coping mechanisms for the demands of coaching at an Olympic and Paralympic level. It would therefore be recommended that a coherent educational strategy is developed that not only reflects the needs and context of coaches at all levels, but also engages funding agencies and NGBs, to understand stress better and appraise the impact of positive and negative stress on performance and long term welfare.

Building upon effective coping strategies comes the importance of effective communities of practice where mentors and coach developers help to support elite coaches. Within the realm of Olympic and Paralympic coaching both coach developers and mentors appear to have a significant importance in filling the gap from coach education. This point could be magnified when it comes to female coaches. Whilst the female coaches in this study appeared to be well supported in terms of access to mentors, CPD and coach developers; generally speaking the existing research suggests there is a gap between formal coach education dealing with complex issues around mental health, dealing with stress and the increased sense of responsibility and isolation that female coaches may experience (e.g., Coach 10F) (Norman et al., 2018; Norris et al., 2020). As such, there is a need to explore how coach education can be evolved to address these gaps in the knowledge base around stress by tackling it proactively rather than retrospectively and including some of the tools identified in this paper.

References

Albrecht, K. (2010). *Stress and the Manager*. Simon and Schuster.

Aldwin, C. M. (2009). *Stress, coping, and development: An integrative perspective*. Guilford Press.

Altfeld, S., Schaffran, P., Kleinert, J., & Kellmann, M. (2018). Minimising the risk of coach burnout: From research to practice. *International Sport Coaching Journal, 5*(1), 71-78. https://doi.org/10.1123/iscj.2017-0033

Awa, W. L., Plaumann, M., & Walter, U. (2010). Burnout prevention: A review of intervention programs. *Patient education and counseling, 78*(2), 184-190. https://doi.org/https://doi.org/10.1016/j.pec.2009.04.008

Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management, 43*(1), 83-104. https://doi.org/https://doi.org/10.1002/hrm.20004

Bentzen, M., Lemyre, N., & Kenttä, G. (2017). A comparison of high-performance football coaches experiencing high- versus low-burnout symptoms across a season of play: Quality of motivation and recovery matters. *International Sport Coaching Journal, 4*(2), 133-146. https://doi.org/10.1123/iscj.2016-0045

Bentzen, M., Lemyre, P. N., & Kenttä, G. (2015). The process of burnout among professional sport coaches through the lens of self-determination theory: a qualitative approach. *Sports Coaching Review, 3*(2), 101-116. https://doi.org/10.1080/21640629.2015.1035050

Bernard, N. S., Dollinger, S. J., & Ramaniah, N. V. (2002). Applying the big five personality factors to the impostor phenomenon. *Journal of Personality Assessment, 78*(2), 321-333. https://doi.org/https://doi.org/10.1207/S15327752JPA7802_07

Blascovich, J., & Mendes, W. B. (2000). *Challenge and threat appraisals: The role of affective cues. In J. P. Forgas (Ed.), Feeling and thinking: The role of affect in social cognition.* Cambridge University Press., 59-82.

Bostock, J., & Breese, R. (2021). Theorising organisational resilience for sport management research and practice. *Managing Sport and Leisure*, 1-17. https://doi.org/https://doi.org/10.1080/23750472.2021.1930113

Bowes, I., & Jones, R. L. (2006). Working at the edge of chaos: Understanding coaching as a complex, interpersonal system. *The Sport Psychologist, 20*(2), 235-245. https://doi.org/https://doi.org/10.1123/tsp.20.2.235

Braun et al. (2019). *Thematic Analysis. In: Liamputtong P. (eds) Handbook of Research Methods in Health Social Sciences.* Springer. https://doi.org/https://doi.org/10.1007/978-981-10-5251-4_103

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L.Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds), *APA handbook of research methods in psychology, Vol. 2: Research designs: Quantitative, qualitative, neuropsychological, and biological (*pp. 57-71). Washington, DC: American Psychological Association. .

Braun, V., & Clarke, V. (2018). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11*(4), 589-597. https://doi.org/https://doi.org/10.1080/2159676X.2019.1628806

Brinkmann, S., & Kvale, S. (2008). Ethics in qualitative psychological research. *The Sage handbook of qualitative research in psychology, 24*(2), 263-279. SAGE Publishing. https://dx.doi.org/10.4135/9781848607927.n15

Byers, T., Gormley, K.-L., Winand, M., Anagnostopoulos, C., Richard, R., & Digennaro, S. (2021). COVID-19 impacts on sport governance and management: a global, critical realist perspective. *Managing Sport and Leisure*, 1-9. https://doi.org/https://doi.org/10.1080/23750472.2020.1867002

Calvin, M. (2015). *Living on the Volcano*. Century.

Collins, D., & Cruickshank, A. (2012). 'Multi-directional management': exploring the challenges of performance in the World Class Programme environment. *Reflective practice, 13*(3), 455-469. https://doi.org/https://doi.org/10.1080/14623943.2012.670630

Collins, D., & MacNamara, Á. (2012). The rocky road to the top. *Sports medicine, 42*(11), 907-914. https://doi.org/https://doi.org/10.1007/BF03262302

Cushion, C., Armour, K. M., & Jones, R. L. (2003). Coach education and continuing professional development: Experience and learning to coach. *Quest, 55*(3), 215-230. https://doi.org/https://doi.org/10.1080/00336297.2003.10491800

Didymus, F. F. (2016). Olympic and international level sports coaches' experiences of stressors, appraisals, and coping. *Qualitative Research in Sport, Exercise and Health, 9*(2), 214-232. https://doi.org/10.1080/2159676x.2016.1261364

Dixon, M., & Turner, M. J. (2018). Stress appraisals of UK soccer academy coaches: an interpretative phenomenological analysis. *Qualitative Research in Sport, Exercise and Health, 10*(5), 620-634. https://doi.org/https://doi.org/10.1080/2159676X.2018.1464055

Dohme, L. C., Rankin-Wright, A. J., & Lara-Bercial, S. (2019). Beyond knowledge transfer: The role of coach developers as motivators for lifelong learning. *International Sport Coaching Journal, 6*(3), 317-328. https://doi.org/https://doi.org/10.1123/iscj.2019-0034

Sport England. (2018). *The coaching plan for England...?* [Ebook]. Retrieved from https://sportengland-production-files.s3.eu-west-2.amazonaws.com/s3fs-public/coaching-in-an-active-nation-two-years-on.pdf

Fedyk, M., & Xu, F. (2018). The epistemology of rational constructivism. *Review of Philosophy and Psychology, 9*(2), 343-362. https://doi.org/https://doi.org/10.1007/s13164-017-0372-1

Fletcher, D., & Scott, M. (2010, Jan). Psychological stress in sports coaches: A review of concepts, research, and practice. *Journal of Sports Science, 28*(2), 127-137. https://doi.org/10.1080/02640410903406208

Flett, G. L., & Hewitt, P. L. (2005). The perils of perfectionism in sports and exercise. *Current directions in psychological science, 14*(1), 14-18. https://doi.org/https://doi.org/10.1111/j.0963-7214.2005.00326.x

Frey, M. (2007). College coaches' experiences with sress—"Problem solvers" have poblems, too. *The Sport Psychologist* https://doi.org/https://doi.org/10.1123/tsp.21.1.38

Griffiths, M. A., Armour, K. M., & Cushion, C. J. (2018). 'Trying to get our message across': successes and challenges in an evidence-based professional development programme for sport coaches. *Sport, Education and Society, 23*(3), 283-295. https://doi.org/https://doi.org/10.1080/13573322.2016.1182014

Grix, J., & Carmichael, F. (2012, 2012/03/01). Why do governments invest in elite sport? A polemic. *International Journal of Sport Policy and Politics, 4*(1), 73-90. https://doi.org/10.1080/19406940.2011.627358

Gustafsson, H., Sagar, S. S., & Stenling, A. (2017, Dec). Fear of failure, psychological stress, and burnout among adolescent athletes competing in high level sport. *Scandinavian Journal of Medicine & Science in Sports, 27*(12), 2091-2102. https://doi.org/10.1111/sms.12797

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing, 72*(12), 2954-2965. https://doi.org/https://doi.org/10.1111/jan.13031

Kenttä, G., Bentzen, M., Dieffenbach, K., & Olusoga, P. (2020). Challenges experienced by women high-performance coaches: Sustainability in the profession. *International Sport Coaching Journal, 7*(2), 200-208. https://doi.org/10.1123/iscj.2019-0029

Kilo, R. A., & Hassmén, P. (2016). Burnout and turnover intentions in Australian coaches as related to organisational support and perceived control. *International Journal of Sports Science & Coaching, 11*(2), 151-161. https://doi.org/10.1177/1747954116636710

Kraft, E., Culver, D. M., & Din, C. (2020). Exploring a women-only training program for coach developers. *Women in Sport and Physical Activity Journal, 28*(2), 173-179. https://doi.org/10.1123/wspaj.2019-0047

Lara-Bercial, S., & Mallett, C. J. (2016). The practices and developmental pathways of professional and Olympic serial winning coaches. *International Sport Coaching Journal, 3*(3), 221-239. https://doi.org/https://doi.org/10.1123/iscj.2016-0083

Lincon, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. *Beverly Hills: Sage*.

Loch, F., zum Berge, A. H., Kölling, S., & Kellmann, M. (2020). 21 stress states, mental fatigue, and the concept of mental recovery in sports. *Feelings in sport: theory, research, and practical implications for performance and well-being. Routledge*.

Lyle, J. (1999). Coaching philosophy and coaching behaviour. *The coaching process: Principles and practice for sport*, 25-46. Oxford: Butterworth-Heinman.

Mallett, C. (2011). Quality coaching, learningand coach development. *Japanese Journal of Sport Education Studies, 22(2)*, 51-62. https://doi.org/https://doi.org/10.7219/jjses.30.2_51

Newcomer, K. E., Hatry, H. P., & Wholey, J. S. (2015). Conducting semi-structured interviews. *Handbook of practical program evaluation, 492*. https://doi.org/10.1002/9781119171386.ch19

Norman, L. (2012). Developing female coaches: Strategies from women themselves. *Asia-Pacific Journal of Health, Sport and Physical Education, 3*(3), 227-238. https://doi.org/https://doi.org/10.1080/18377122.2012.721725

Norman, L., Rankin-Wright, A. J., & Allison, W. (2018). "It's a concrete ceiling; It's not even glass": Understanding tenets of organizational culture that supports the progression of women as coaches and coach developers. *Journal of Sport and Social Issues, 42*(5), 393-414. https://doi.org/10.1177/0193723518790086

Norris, Didymus, F. F., & Kaiseler, M. (2020). Understanding social networks and social support resources with sports coaches. *Psychology of Sport and Exercise, 48*, 101665. https://doi.org/https://doi.org/10.1016/j.psychsport.2020.101665

Norris, L. A., Didymus, F. F., & Kaiseler, M. (2017). Stressors, coping, and well-being among sports coaches: A systematic review. *Psychology of Sport and Exercise, 33*, 93-112. https://doi.org/10.1016/j.psychsport.2017.08.005

North, J. (2010). Using 'coach developers' to facilitate coach learning and development: qualitative evidence from the UK. *International Journal of Sports Science & Coaching, 5*(2), 239-256. https://doi.org/10.1260/1747-9541.5.2.239

North, J., Piggott, D., Rankin-Wright, A., & Ashford, M. (2020). An empirical examination of U.K. coaches' issues and problems, and their support and advice networks. *International Sport Coaching Journal, 7*(3), 283-294. https://doi.org/10.1123/iscj.2019-0049

Olusoga, P., Butt, J., Hays, K., & Maynard, I. (2009). Stress in elite sports coaching: Identifying stressors. *Journal of Applied Sport Psychology, 21*(4), 442-459.

Olusoga, P., Butt, J., Maynard, I., & Hays, K. (2010). Stress and coping: A study of world class coaches. *Journal of Applied Sport Psychology, 22*(3), 274-293. https://doi.org/10.1080/10413201003760968

Olusoga, P., & Kenttä, G. (2017). Desperate to quit: A narrative analysis of burnout and recovery in high-performance sports coaching. *The Sport Psychologist, 31*(3), 237-248. https://doi.org/10.1123/tsp.2016-0010

Potts, A., Didymus, F., & Kaiseler, M. (2021). Psychological stress and psychological well-being among sports coaches: A meta-synthesis of the qualitative research evidence. *International Review of Sport and Exercise Psychology*. https://doi.org/https://doi.org/10.1080/1750984X.2021.1907853

Rynne, S. B., Mallett, C.J., & Rabjohns, M.W. . (2017). High performance coaching: Demands and development. In R. Thelwell, C. Harwood, & I. Greenlees (Eds.), *The psychology of coaching: A contemporary review.* London, UK: Routledge.

Schaffran, P., Altfeld, S., & Kellmann, M. (2016). Burnout bei trainern: Ein review zu einflussfaktoren, diagnostik und interventionen. *Deutsche Zeitschrift für Sportmedizin, 2016*(05), 12-125. https://doi.org/10.5960/dzsm.2016.232

Schinke, R. J., Stambulova, N. B., Si, G., & Moore, Z. (2018). International society of sport psychology position stand: Athletes' mental health, performance, and development. *International Journal of Sport and Exercise Psychology, 16*(6), 622-639. https://doi.org/https://doi.org/10.1080/1612197X.2017.1295557

Schubring, A., Mayer, J., & Thiel, A. (2019). Drawing careers: The value of a biographical mapping method in qualitative health research. *International Journal of Qualitative Methods, 18*. https://doi.org/10.1177/1609406918809303

Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology, 11*(1), 101-121. https://doi.org/https://doi.org/10.1080/1750984X.2017.1317357

Stewart, M. (2012). 'Understanding learning: theories and critique', in L.Hunt and D. Chalmers (eds) "University teaching in focus: a learning-centred approach", London, Routledge. https://doi.org/https://doi.org/10.4324/9780203079690-1

Stodter, A., & Cushion, C. J. (2016). Effective coach learning and processes of coaches' knowledge development: what works? In P.A Davis (Ed.) *The Psychology of Effective Coaching and Management*. In. Nova Science Publishers.

Stoeber, J. (2015). How other-oriented perfectionism differs from self-oriented and socially prescribed perfectionism: Further findings. *Journal of Psychopathology and Behavioral Assessment, 37*(4), 611-623. https://doi.org/https://doi.org/10.1007/s10862-015-9485-y

Stoszkowski, J., & Collins, D. (2012). Communities of practice, social learning and networks: exploiting the social side of coach development. *Sport, Education and Society, 19*(6), 773-788. https://doi.org/10.1080/13573322.2012.692671

Thelwell, Weston, N. J., Greenlees, I. A., & Hutchings, N. V. (2008). Stressors in elite sport: A coach perspective. *Journal of Sports Sciences, 26*(9), 905-918. https://doi.org/https://doi.org/10.1080/02640410801885933

Theorell, T., Karasek, R., & Eneroth, P. (1990). Job strain variations in relation to plasma testosterone fluctuations in working men-a longitudinal study. *Journal of internal medicine, 227*(1), 31-36. https://doi.org/https://doi.org/10.1111/j.1365-2796.1990.tb00115.x

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative inquiry, 16*(10), 837-851. https://doi.org/https://doi.org/10.1177/1077800410383121

Woodman, T., & Hardy, L. (2001). A case study of organizational stress in elite sport. *Journal of Applied Sport Psychology, 13*(2), 207-238. https://doi.org/https://doi.org/10.1080/104132001753149892