



Citation for published version:

Arnold, R, Collington, S, Manley, H, Rees, S, Soanes, J & Williams, M 2019, "The Team Behind The Team": Exploring the Organizational Stressor Experiences of Sport Science and Management Staff in Elite Sport', *Journal of Applied Sport Psychology*, vol. 31, no. 1, pp. 7-26. <https://doi.org/10.1080/10413200.2017.1407836>

DOI:

[10.1080/10413200.2017.1407836](https://doi.org/10.1080/10413200.2017.1407836)

Publication date:

2019

Document Version

Peer reviewed version

[Link to publication](#)

This is an Accepted Manuscript of an article published by Taylor and Francis in *Journal of Applied Sport Psychology* on 21 Nov 2017, available online: <http://www.tandfonline.com/10.1080/10413200.2017.1407836>

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“The Team Behind The Team”:
Exploring the Organizational Stressor Experiences of Sport Science and
Management Staff in Elite Sport

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Abstract

This study explored the organizational stressors encountered by the “team behind the team” (viz. those operating in sport science and management roles) in elite sport and the consequences these can have. 40 support personnel working in elite sport were interviewed. Thematic analyses unveiled 36 lower- and six higher-order themes, which were separated into stressors encountered (e.g., relationship and interpersonal, physical resource, contractual and performance development, organizational structure and logistical) and their consequences (e.g., emotions and outcomes). Building on extant work, this study moves the focus beyond athletes’ stress experiences to provide novel insight into those operating in sport science and management roles. The findings offer original insight into the educational needs of sport science and management staff, which can inform practitioners who face increasing demands to work with such personnel, and raise sports organizations’ awareness of their duty of care to employees and the factors that need to be managed.

Keywords: Olympic, professional, response, strain, stress

1 “The Team Behind The Team”:

2 Exploring the Organizational Stressor Experiences of Sport Science
3 and Management Staff in Elite Sport

4 Over the past few decades, a body of research has emerged which demonstrates the
5 prevalence of organizational stressors in the sports context. This research, which has primarily
6 focused on athletes’ experiences, has explored the various demands encountered that are
7 associated with the organization to which sport performers affiliate. To elaborate, via a
8 synthesis of research on this topic, Arnold and Fletcher (2012) presented 34 studies which had,
9 collectively, identified 640 distinct organizational stressors encountered by sport performers.
10 These stressors were organized into four categories: leadership and personnel, cultural and
11 team, logistical and environmental, and performance and personal issues. Additional research
12 examining athletes’ stress experiences has illuminated the problematic nature of organizational
13 demands if they remain unaddressed. Such undesirable responses and outcomes can include:
14 overtraining, burnout, unpleasant emotions and affect, psychological need frustration,
15 dysfunctional health and well-being, and impaired preparation for and performance in major
16 competitions (see, e.g., Arnold, Fletcher, & Daniels, 2017; Bartholomew, Arnold, Hampson, &
17 Fletcher, in press; Fletcher, Hanton, & Wagstaff, 2012; Gould, Guinan, Greenleaf, Medbery, &
18 Peterson, 1999; Tabei, Fletcher, & Goodger, 2012). In view of their prevalence and
19 consequences, scholars have produced evidence for practitioners working with athletes on the
20 optimal identification, measurement, and management of organizational stressors (cf. Arnold,
21 Fletcher, & Daniels, 2013, 2016; Arnold, Ponnusamy, Zhang, & Gucciardi, 2017; Arnold,
22 Wagstaff, Steadman, & Pratt, 2017; Rumbold, Fletcher, & Daniels, 2012).

23 In the provision of sport psychology support, however, practitioners often find
24 themselves working with personnel other than solely the athletes. Indeed, there are additional
25 “performers” in the sports context (e.g., the coach) who, like athletes, encounter difficult
26 situations, are expected to perform under pressure, and seek the support of a sport psychologist

1 (Wagstaff, 2017). In recognition of these other performers, research has begun to also examine
2 the demands that may affect their performances. Specifically, studies have been conducted
3 which explore the stressors encountered by coaches (see, for a review, Fletcher & Scott, 2010)
4 and sport psychologists (Fletcher, Rumbold, Tester, & Coombes, 2011).

5 Starting with the coach, Fletcher and Scott (2010) highlighted the sheer quantity of
6 stressors that individuals operating in this role encountered and how these could emanate from
7 a variety of sources. To illustrate this further, Thelwell, Weston, Greenlees, and Hutchings
8 (2008) identified 182 demands reported by coaches in sport, and suggested that these could be
9 separated into performance-related (e.g., coaches' athletes performances or their own) and
10 organizational-related (e.g., demands relating to their sports organization) dimensions. Of
11 additional interest in Fletcher and Scott's (2010) review was the identification of a bias toward
12 burnout when examining the consequences of psychological stressors for sports coaches.
13 Indeed, a number of studies in the literature have identified burnout as being associated with
14 higher levels of perceived stress and a salient feature of a coaches' lives (see, for a review,
15 Goodger, Gorely, Lavalley, & Harwood, 2007). In addition to burnout, coaches' stressors can
16 potentially affect their focus, decision making, and job performance (Frey, 2007).

17 Turning to sport psychologists, Fletcher et al. (2011) revealed that they encountered
18 numerous organizational stressors which were separated into five dimensions. These were:
19 factors intrinsic to sport psychology (e.g., workload, evaluation, ethical obligations); roles in
20 the organization (e.g., responsibility, ambiguity, overload); sport relationships and
21 interpersonal demands (e.g., personality type, lack of social support); career and performance
22 development issues (e.g., advancement, job insecurity, funding); and organizational structure
23 and climate of the profession (e.g., bureaucracy, inadequate communication channels, no sense
24 of belonging). Upon reviewing the literature on coach and psychologist stress in sport, it is
25 clear that individuals in these positions encounter a number of demands associated with the
26 organization within which they operate. Furthermore, such organizational-related stressors can

1 create various outcomes for coaches and psychologists. This is in accordance with the meta-
2 model of stress, emotion, and performance (Fletcher, Hanton, & Mellalieu, 2006) which
3 suggests that stressors arise from the environment an individual is operating in, are mediated
4 by perception, appraisal, and coping, and as a consequence, result in various responses, feeling
5 states, and outcomes.

6 Notwithstanding the pivotal role that a coach and sport psychologist play in elite sport,
7 it is important to be mindful of other “performers” operating in this domain, whose stress
8 experiences have not yet been investigated in research. Indeed, as the recognition of the impact
9 that sports science and medicine related factors can have on elite performance has grown, the
10 size and sophistication of elite and professional sports’ teams of support staff (e.g., those in
11 sport science and management roles) has also witnessed rapid expansion (cf. Gilmore &
12 Gilson, 2007; Wagstaff, Thelwell, & Gilmore, 2015). Nowadays, it would not be uncommon
13 for such teams to also comprise, or at least have access to, sports medicine personnel (e.g.,
14 doctors, physiotherapists), sport scientists (e.g., psychologists, physiologists, biomechanists,
15 nutritionists), and various other support staff and individuals working for the organization (e.g.,
16 performance lifestyle advisors, strength and conditioning coaches, performance analysts,
17 performance knowledge specialists, performance directors, and performance leads). The
18 widespread emergence of and considerable contemporary investment in this “team behind the
19 team” demonstrates the value of such personnel (Wagstaff et al., 2015). As an illustration, the
20 English Institute of Sport (EIS) currently employ over 350 members of staff who are tasked
21 with delivering services that can help sports to improve the performance and wellbeing of their
22 athletes (EIS, 2016). Given the growth of sport science and management staff in elite sport, it
23 seems surprising that there are no studies published on their organizational stress experiences.
24 It is worth noting, however, that there have been studies conducted to examine such staff
25 members’ experiences of multidisciplinary work (Malcolm & Scott, 2011; Reid, Stewart &
26 Thorne, 2004) and organizational change (Larner, Wagstaff, Thelwell & Corbett, 2017;

1 Wagstaff, Gilmore, Thelwell, 2015; 2016; Hings, Wagstaff, Thelwell, Gilmore, & Anderson,
2 2017).

3 The rationale for studying these organizational stress encounters, however, is that,
4 similar to the previously studied roles of coaches and psychologists, these personnel can be
5 considered performers in their own right given their roles in supporting athletes often within
6 highly pressurized contexts. To further support the “performer” label, psychologists have
7 reported working with broader sport science and management staff (Arnold & Sarkar, 2015;
8 see also Hings et al., 2017) to help them with issues similar to those athletes and coaches report
9 (e.g., emotional control, interpersonal relationships etc). Thus, since the sports environment has
10 proved to be a hotbed for organizational stressors in athletes, coaches, and psychologists, it is
11 likely that broader support personnel will also encounter such demands; however, no
12 investigation to date has been conducted on the stress experiences of these groups. This,
13 therefore, provides a fruitful line of future research enquiry. Such investigation will provide a
14 clearer understanding of the challenges that sport science and management staff face within
15 their roles and, in doing so, raise employers’ (e.g., National Governing Bodies, Sports Clubs,
16 National Institutes of Sport) awareness of their duty of care to employees and offer
17 practitioners valuable insight into the educational and support needs of such staff. The first
18 purpose of this study, therefore, is to explore the organizational stressors encountered by sport
19 science and management staff in elite sport. Additionally, given the role that such staff can
20 play in athletic and organizational success (cf. Fletcher & Wagstaff, 2009; Gould, Greenleaf,
21 Guinan, Dieffenbach, & McCann, 2001), the second purpose of this study, in line with the
22 meta-model (Fletcher et al., 2006), is to explore the consequences of the organizational
23 stressors they encounter.

24 **Methods**

25 **Participants**

26 40 support personnel currently working in elite sport participated in this study.

1 Specifically, participants represented a variety of sport science and management roles,
2 including performance directors and leads ($n = 12$), strength and conditioning coaches ($n = 15$),
3 sports scientists ($n = 2$), and physiotherapists ($n = 11$)¹. 33 participants were male and 7 were
4 female, with the sample ranging in age from 25-54 years ($M = 34.58$, $SD = 7.10$). The
5 participants had been working in elite sport for between two and 25 years ($M = 9.43$, $SD =$
6 5.83) and were currently providing support at the elite level in various sports (e.g., Athletics,
7 Cricket, Cycling, Football, Rugby Union, Tennis, Triathlon).

8 **Procedure**

9 After receiving institutional ethical approval, personnel working in support roles in elite
10 sport were contacted. Such contact details were drawn from the research teams' networks of
11 sporting contacts (e.g., through University placement year contacts), as well as conducting
12 online searches of elite sporting organizations' websites. This initial communication informed
13 them about the study, their ethical rights (e.g., anonymity, right to withdraw), and invited them
14 to participate. Those individuals who were happy to partake were emailed to arrange a
15 convenient date, time, and location for an interview. The interviews, which were conducted
16 either face-to-face ($n = 20$) or over Skype™ ($n = 20$), took a semi-structured format. Whilst
17 Skype™ interviews may lack the advantages of physical interactions (cf. Sparkes & Smith,
18 2014), they can provide greater anonymity and, in doing so, increase participants' willingness
19 to share information. All authors were involved in conducting the interviews, after receiving
20 appropriate training. An interview guide was used for each interview; however, the ordering
21 and probing of questions was determined by the flow of each conversation. All interviews were
22 digitally recorded and transcribed verbatim. The interviews ranged in duration from 33 to 106
23 minutes ($M = 83.28$ minutes, $SD = 15.61$).

24 **Interview Guide**

25 A six-section interview guide was developed for this study. Section 1 reminded
26 participants about the purpose and background of the study as well as their ethical rights.

1 Section 2 was an opportunity to confirm participant understanding of the study before
2 providing written informed consent. Following this, Section 3 involved introductory questions
3 to build rapport between the interviewer and interviewee and to learn more about them (e.g.,
4 How has your journey developed from setting out in your occupation to where you are now?
5 Did you previously compete in sport yourself?) In Section 4, participants were provided with a
6 definition of organizational stressors (Fletcher et al., 2006) and asked to reflect on any they
7 encountered within their role that placed a demand on them. To assist with this participants
8 were asked questions such as “Can you talk me through a general weekday in your position?”
9 “Can you tell me about the main roles and responsibilities in your job?” “Who do you interact
10 with in your role?” “Do you work as part of a team?” As the participant was responding to the
11 questions, the interviewer probed to see where any demands were being placed on individuals
12 (e.g., “Does this place any demand on you?”) and made a note of the stressors being
13 mentioned. This list was then used to inform Section 5 of the interview, whereby participants
14 were asked about the consequences of the organizational stressors in general, rather than the
15 consequences of any specific organizational stressors (e.g., “What effect did the stressors have
16 on you?” “Did the stressors have any consequences for you?”) Finally, in Section 6 participants
17 were asked if they had any further points they wanted to raise and also how they would
18 evaluate the efficacy of the interview (e.g., “How did you feel the interview went?”)

19 **Data Analysis**

20 A thematic analysis, following Braun and Clarke’s (2006) six-step process, was chosen
21 to explore the organizational stressors encountered by the sport science and management staff
22 and the consequences of these demands. Firstly, this involved all the authors transcribing the
23 data (i.e. each transcribing the interviews they had conducted) in a consistent format and then
24 the lead author reading and re-reading the transcripts and noting down initial ideas. At this
25 stage, the lead author liaised with the author who had conducted each specific interview to
26 discuss the initial ideas identified. Secondly, working through the entire data set, initial codes

1 were created for interesting features of the data by the lead author, before she collated together
2 data extracts within each code¹ (see Figures for example codes). In step three, codes were
3 collated into potential lower-order themes, then combined and categorized as higher-order
4 themes, and subsequently pieced together into appropriate general dimensions. Illustrative
5 examples of the links between codes, lower-order themes, higher-order themes, and general
6 dimensions in this specific study can be seen in Figures 1 and 2. Step three was done separately
7 for the stressors and the consequences of these demands.

8 Themes were then reviewed in step four by all authors, which took the form of a group
9 meeting where each general dimension was taken in turn and the themes and codes within it
10 were discussed to ensure they were optimally structured and appropriate to the dimension. A
11 further discussion occurred between the author and a colleague (acting as a ‘critical friend’;
12 Watt, 2007) which took the form of a critical dialogue whereby both parties voiced their
13 interpretations to the other, who listened and provided critical feedback. In the fifth step, the
14 lead author named the themes and dimensions, before bringing the suggestions to a further
15 group discussion. Some minor modifications were made to the labels at this stage to best
16 reflect the interview narratives and the data. For example, the lower-order theme “technology”
17 was labelled “technology and data” during these discussions to optimally reflect the codes
18 relating to data emerging from technology within this lower order theme and the emphasis
19 placed on this stressor by participants in the interviews. In terms of the approach to the
20 reasoning around the data analysis, whilst this was primarily dominated by inductive
21 procedures, abductive and deductive reasoning also played a partial role in the later stages to
22 assist with the theme and dimension labelling. This approach is common in qualitative
23 research, with Gibbs (2007) noting: “it is very hard for analysts to eliminate completely all
24 prior frameworks . . . inevitably qualitative analysis is guided and framed by pre-existing ideas
25 and concepts” (p. 45). The results section of the manuscript was produced in step six, which
26 displays the thematic representation of the data with accompanying quotes to further illustrate

1 the participants' organizational stressor experiences. Finally, a frequency analysis was
2 conducted to illustrate the number of codes within each lower-order theme (Neuendorf, 2002).
3 Importantly, however, the formation of themes was not dependent on this frequency count, but
4 rather each theme's capacity to represent the co-negotiated knowledge in the interviews.

5 **Rigor and Trustworthiness**

6 Scholars have suggested that a selection of criteria should be used to evaluate the
7 quality of qualitative research, since certain criteria are likely to change over time and
8 conditions (Sparkes & Smith, 2009). In this study, authenticity was enhanced by using the
9 processes of a 'critical friend' (see Data Analysis Section). Importantly, this process did not
10 aim to achieve consensus; rather the process was adopted to challenge each other's
11 construction of knowledge and encourage reflexivity (Cowan & Taylor, 2016; Smith &
12 McGannon, 2017). In addition, credibility and rigor (cf. Potter & Hepburn, 2005) were pursued
13 by interviewing knowledgeable sport science and management staff from elite sport who had
14 first-hand experience of operating in these roles, using the same interview guide with all
15 participants (see Interview Guide Section), and reporting the procedures in a comprehensive
16 methods section. Finally, the study aimed to achieve methodological integrity via its two
17 constituents: fidelity and utility (Levitt, Moyulsky, Wertz, Morrow, & Ponterotto, 2017; Smith
18 & McGannon, 2017). To elaborate, integrity has been demonstrated through the research
19 design and procedures (e.g., interviews, thematic analysis) supporting the goals of this research
20 (i.e. to explore the organizational stressors encountered and their consequences); respecting the
21 researchers' approach to inquiry (i.e. that the phenomena under study is socially constructed
22 and interviews explore lived experiences) and being tailored to the fundamental characteristics
23 of the subject matter and investigators (e.g., insightfulness of participants). Fidelity to the
24 subject matter was captured through the thick descriptions of the lived experiences provided by
25 participants (and illustrated in the quotes displayed), many of which illustrate internal
26 experiences of participants which would have been difficult to observe. Turning to utility, this

1 was demonstrated through effectively recruiting and interviewing the sample of sport science
2 and management staff to achieve the aims of the study. To elaborate, a sample of sport science
3 and management personnel who had current experience of working in elite sport were recruited
4 and interviewed with questions asked about any stressors they encountered within their role
5 that placed a demand on them, all to help achieve the goal of this study which was to produce
6 findings which provide a meaningful contribution to the understanding of their organizational
7 stress experiences.

8 **Results**

9 405 raw data codes² emerged from the thematic analysis, which were separated into 36
10 lower-order themes and 6 higher-order themes (see Figures 1-2). The higher-order themes were
11 then separated into two general dimensions: The Organizational Stressors Encountered By The
12 “Team Behind The Team” (see Figure 1) and The Consequences of Organizational Stressors
13 for The “Team Behind The Team” (see Figure 2). The organizational stressors encountered
14 consisted of four higher-order themes: relationship and interpersonal issues, physical resource
15 issues, contractual and performance development issues, and organizational structure and
16 logistical issues (see Figure 1). The consequences general dimension consisted of two higher-
17 order themes: emotions and outcomes (see Figure 2). Emotions included lower-order themes of
18 anger, frustration, and anxiety; whereas outcomes included ten lower-order themes: cognitions
19 and beliefs, feelings, well-being, job performance, athlete performances and readiness, work-
20 life balance, family and social life, personal care and finance, personal development, and
21 club/organization development. Whilst these two general dimensions are shown separately on
22 the figures, the two will be presented in an integrated manner in the results section to allow for
23 coherence.

24 **Relationship and Interpersonal Issues**

25 This higher-order theme consisted of seven lower-order themes. These were: leaders
26 and owners, coaches, athletes, colleagues, media, communication and feedback, and

1 expectations and accountability (see Figure 1). With regards to leaders and owners, the
2 participants spoke about demands relating to their decision making, philosophies, focus,
3 leadership and management styles, and the relationships they had with them. Turning to the
4 coaches, who the participants typically worked with more closely than owners, whilst the
5 aforementioned leader demands were mentioned, the participants additionally recalled stressors
6 relating to coaches' lack of experience, differing opinions and aims, questioning of work,
7 hesitation to buy into what the participants were doing, and expectation that all would conform
8 to their way. The following quote illustrates the organizational demand placed on support staff
9 when the coach doesn't value their expertise:

10 The coach is very autocratic and wants me to provide the service that he wants.
11 He doesn't really care about my opinion because he knows best, he has tried it all
12 before. Sometimes he will put me on the spot but no matter what answer I give,
13 he will shun my opinion. My job is to influence the coaches, so when he shuns my
14 opinion even when I know the science behind it is completely sound, that can be
15 quite stressful. (Participant 2)

16 For many of the participants interviewed, their primary role was to support the athletes
17 within their sport. It comes as no surprise, therefore, that a number of stressors were identified
18 linked to working with the athletes themselves. Specifically, these included athletes'
19 personalities, decision making, and a range of behaviors (e.g., not complying with
20 rehabilitation plans, not acting professionally). A particular behavioral stressor that was
21 frequently cited by participants was athletes not working hard enough, as the follow quote
22 exemplifies:

23 We've got a player at the moment who has an ankle injury. There's no medical
24 reason why it shouldn't be getting better, but it isn't. But he's one of these players
25 who is really happy to coast. Happy to drift. We've come to the conclusion as
26 support staff that he's not playing, he's getting paid, he's not training, he is just

1 having an easy time, doing a bit of rehab, going into the pool and then he is off at
2 the end of the season. So it suits him down to the ground to not work hard and roll
3 it out as much as possible. But that piles the pressure onto me, because it makes
4 me look like I am not doing my job because I'm not getting him fit and nothing is
5 changing. (Participant 31)

6 Stressors were also cited relating to the other colleagues that participants worked with
7 (e.g., strength and conditioning coaches, physiotherapists, sport scientists, performance
8 directors, psychologists). Example stressors recalled were associated with their colleagues'
9 personalities (e.g., lack of openness, negativity), behaviors (e.g., minimal empathy shown, lack
10 of responsibility taken for mistakes), skills (e.g., no planning ability) and relationship with
11 participants (e.g., conflict, disagreements). The following quote illustrates a stressor
12 encountered by participants whereby their colleagues have different priorities to themselves:

13 As physios we are a little bit different. The S&Cs come from a performance angle
14 whereas we come from a welfare angle. We have to keep in mind that performance
15 is a bigger thing for the other coaches in the system. So for the good of the player,
16 you have to dig your heels in sometimes. I've had that almost on a weekly basis
17 where they are so desperate for a player to be in a session and they are just not
18 ready. (Participant 29)

19 The media also created stressors for sport science and management staff, by their high
20 level of scrutiny and the judgments and comments that they make. The following quote
21 outlines some of these organizational stressors relating to the media:

22 Often, by the time the information has reached the media it has been lost in
23 translation. That can lead to an inaccurate portrayal of what is really going on from
24 a medical point of view, which can place a demand on us. Due to confidentiality
25 and medical law, we have to be quite vague and that can be portrayed as us,
26 frustratingly, looking like we don't know what is going on; instead we just don't

1 want to break confidentiality. (Participant 28)

2 The communication and feedback lower-order theme included many demands relating
3 to problems with the communication or feedback itself (e.g., a lack of it, broken down,
4 conflicting, or not feeling listened to). Additionally, stressors also emerged relating to
5 communicating in particular circumstances (i.e. difficulties when organization is located
6 nation- or world-wide) or with an over-emphasis on certain types (e.g., email preferred over
7 face-to-face).

8 The final lower-order theme represented the various expectations placed upon the sport
9 science and management staff. Not only did these come from a range of different personnel
10 (e.g., athletes, coaches, colleagues, funders, agents, and the national governing body) but they
11 were also wide ranging in nature. Indeed, example expectations recalled were to perform and
12 provide the best possible service every day, to have a presence on social media, to offer quick
13 answers to identified problems, to advise beyond specialty, and to constantly be searching for
14 an innovative competitive advantage.

15 **Example outcomes.** In addition to the stressors encountered, the results also illustrate
16 the consequences organizational stressors can have for sport science and management staff (see
17 Figure 2). One consequence of the demands can be on their cognitions and beliefs.
18 Specifically, participants reported that organizational stressors could create a constant personal
19 questioning of their role and job, and impair belief in their levels of confidence. Moreover,
20 participants spoke about the negative effect of organizational stressors on their overall mental
21 health and well-being. The following quote illustrates feelings of depression and suffocation
22 that result from the stressor of differences in colleagues' philosophies:

23 If you take a team or department and you want to go forwards with something,
24 then you all have to be on the same page. If you're not, things become very
25 difficult and you don't work to your best levels because you become frustrated
26 that one person isn't pulling in the same direction. And what happens with that

1 situation is like wildfire, because you are all talking about that thing on a regular
2 basis and you are then sitting in a situation where you can't see the end of the
3 tunnel, and every day becomes dark because you are getting the same s**t all the
4 time and you can't f*****g change it, you can't even step outside the box. And it
5 feels like everything is trapped if you know what I mean, it's in a vacuum and you
6 can't get out, it's depressing and suffocating. (Participant 9)

7 The sport science and management staff also reflected on the feelings of demotivation
8 and a lack of desire to persist that could occur when encountering organizational demands. In
9 addition, the organizational stressors could also have consequences for individuals' physical
10 health, with several participants referring to them creating tiredness, fatigue, and burnout
11 symptoms. Turning from motivation and health to emotions, the following quote provides an
12 example of the negative emotion of frustration displayed in response to the demand of
13 organizational communication:

14 So when the organization went through a restructure with lots of new recruitments,
15 the communication was appalling. Not being communicated to properly was a huge
16 frustration for me, all of that organizational rubbish that goes on is really.
17 (Participant 1)

18 **Physical Resource Issues**

19 This higher-order theme consisted of four lower-order themes. These were: facilities,
20 equipment, technology and data, and safety (see Figure 1). Taking first the facility stressors
21 identified, these typically related to either their quality or accessibility. An example stressor
22 identified by various participants was having to share facilities with others:

23 The facility here is difficult to work in. You share it with a massive student body
24 who are obviously as equally entitled to use it as we are, so I couldn't just walk
25 into the gym and do exactly what I wanted knowing it was going to be empty . . .
26 . So that adds another layer of organization to any session and again it's just

1 another distraction from my role of actually training athletes. (Participant 15)

2 Turning to the equipment lower-order theme, stressors identified included restrictions
3 on what equipment was available and the difficulties transporting it both to training sessions
4 and when travelling with the sport. A number of stressors were also recalled about the
5 technology that the staff were using. Specifically, they discussed stressors associated with
6 identifying which of the various emerging technologies would be best for them, the technology
7 itself (e.g., online only records system, slow and not user-friendly), and also stressors linked to
8 how technology was used. To elaborate on the latter, the staff described how they were
9 expected to collect a large amount of data from players but then had stressors associated with
10 how to best manage that data and turn it around in a short amount of time for coaches and other
11 stakeholders to view, as the following quote demonstrates:

12 The technology can produce a lot of data, and the more there is of it, the harder it
13 is to manage it, store it, interpret it, and feed it back. The coach will often want
14 the data back as soon as possible so this can place a huge demand on us. Some
15 will often question us around why we are collecting it, so that can put pressure on
16 us because we have to produce a clear, concise, accurate, and quick interpretation
17 so they can see the value in it all. (Participant 33)

18 The most frequently noted code, however, within this lower-order theme of physical
19 resource issues was the stressor of technology failing or breaking, as the below quote indicates:

20 We use [Name of technology] to do all of our notes, which is a pain in the a**
21 because it always crashes. So you can be halfway through writing up all your notes
22 for one of the boys, and it will just freeze and you lose it all, and you have to start
23 again. And that is probably the biggest stress of my life. (Participant 2)

24 Finally, some participants reported stressors relating to a perceived lack of personal
25 safety and risk of physical injury when conducting certain sessions for athletes.

26 **Example outcomes.** Despite the majority of the outcome themes highlighting the

1 negative consequences that organizational stressors could have, two participants reflected on
2 the positive outcomes of the demands both for them and the broader organization. The quote
3 from one of those participants illustrates this at both of these levels:

4 So there is the constant expectation on you to be the best in everything you do. So
5 you are always pursuing the best treatments, the best equipment, the best methods
6 to do that. Constantly trying to develop and stay ahead of the game, to keep driving
7 forwards. But that's not a bad pressure, in that it's something that helps you
8 develop and helps enhance what you do, and enhance what the club is, and
9 hopefully leads to the club success at the end. (Participant 30)

10 **Contractual and Performance Development Issues.**

11 This higher-order theme consisted of five lower-order themes. These were: workload
12 and hours, finances and pay, job security, performance measurement, and career and
13 development (see Figure 1). Workload and hours were commonly cited as stressors by
14 participants. Specifically, they spoke about having too much work, being required to work
15 antisocial hours and days, and being expected to be available 24/7. The most frequently cited
16 code in this lower-order theme was the expectation to work for a long time, often with few
17 days off:

18 I went through three months without a day off – I was averaging 10 hour days,
19 seven days a week, so 70 hour weeks for three months. Sunday might have only
20 been four hours, but many of the days in the week have been 12 hours. (Participant
21 14)

22 Linked to workload and hours, many participants also spoke about how they felt they
23 were not paid enough for the work they were doing. Other finance and pay stressors reported
24 by the sport science and management staff were a lack of finances for necessary positions in
25 the organization, treating athletes, and being able to conduct the role optimally. Most
26 participants agreed that the lack of job security in elite sport was a stressor for them, with the

1 “cut-throat” elite sport industry placing intense pressure on them to not lose their job. Some
2 participants suggested that a stressor they encountered was their performance measurement,
3 which was based primarily on how athletes were performing and improving, rather than more
4 proximal markers of their own work:

5 So professional sport is really all about the performance. As support staff, we can
6 do all we can to prepare the athletes but then ultimately whether we win or lose is
7 in their [athletes’] hands. And that can create quite a pressure on us because if they
8 don’t perform, that reflects really badly on us even though it’s completely out of
9 our hands and is their performance not ours. We are just a spectator in it all by
10 that stage. (Participant 31)

11 The final lower-order theme, career and development, included stressors encountered at
12 the start of the role (e.g., poor handover and induction) as well as continual pressures to stay
13 abreast of any new rules and regulations in the sport and emerging research studies which
14 might be informative for their role. An additional career and development stressor was the
15 pressure to engage in lots of professional development, even if this took time away from the
16 job:

17 In a high pressured, high performance environment you have to deliver medals
18 and results because that’s what the money is there for. At the same time we are
19 getting excessive pressure from our employer to do bits and pieces [of
20 development], go off and do a course, or do this conference. We certainly get
21 driven hard to develop ourselves. So they are wanting our time for things that we
22 see as not necessarily going to win a medal. (Participant 6)

23 **Example outcomes.** The largest number of codes within the consequences dimension
24 was for job performance. Most of the participants agreed that organizational stressors had, at
25 some point, had negative consequences for their job performance. In addition, the sport science
26 and management staff recalled specific instances where the organizational demands had

1 effected particular components of their performance. One example was the consequence of
2 reduced working pace and capacity, and the following extract illustrates an instance of a
3 participant rushing a job because of workload pressures:

4 There was this one case where my workload definitely made me rush a job. So I
5 was writing a program for a rehab-ing athlete and I was supposed to be seeing her
6 at 6 o'clock at night, I wrote the program at 5.30. It was the kind of job that I
7 should have done at the start of the day but it was one of those days where there
8 is just too much to do. What I put on the program didn't sit in line with the
9 restrictions on her training, in other words she shouldn't have been doing what I
10 set. This created a bit of a rift with her because we knocked her back probably two
11 or three weeks with what I programmed, with what I rushed and cut corners with.
12 (Participant 7)

13 The participants also described situations where the demands associated with their
14 organization had effected the content and process of their delivery (e.g., not delivering what
15 was expected or not feeling prepared). Organizational stressors also influenced the quality of
16 work delivered (e.g., making mistakes). In addition to organizational stressors having negative
17 consequences on their own job performances, several of the staff described times where the
18 demands they encountered had, ultimately, had negative consequences for player performances
19 and their readiness to train and compete.

20 **Organizational Structure and Logistical Issues.**

21 This higher-order theme consisted of six lower-order themes. These were:
22 organizational processes and set-up, organizational culture, vision and goals, roles, travel and
23 accommodation, and sports rules and scheduling (see Figure 1). Firstly, participants spoke
24 about organizational processes and set-up stressors associated with the various layers of their
25 sporting organization and its hierarchy. Additional stressors in this lower-order theme related
26 to where staff and athletes were physically based, the amount of contact time with athletes, and

1 problematic organizational processes (e.g., too slow organizational decision making, too much
2 paper work). Also within the organization, participants agreed that the culture was a stressor
3 for them. The exact stressors associated with the culture differed amongst participants,
4 however, example stressors included a blame culture, a culture where an extra 1% was always
5 being sought, and a male dominated culture. The first of these types of culture stressors (i.e. a
6 blame culture) is illustrated in the first quote below and the latter culture stressor (i.e. a male
7 dominated culture) is illustrated in the second quote:

8 In some organizations I have worked in, when performance doesn't go as billed,
9 everyone is looking for someone else to pin the blame on. If the coach is under
10 the pump, then he needs an outlet and that will often be us. So because they have
11 already copped it from a skills perspective, then it's like ok they were not fit
12 enough which of course is putting us under pressure and blaming us for the
13 performance. (Participant 32)

14 There are a lot of alpha males in the world of sport. Take [Name of Sport], I'm
15 the only female in the support team so it's a very male dominated environment
16 and sometimes you have to take a few comments here and there and just ignore it.
17 That's me just trying to fit into the culture. It tends to be just harmless, there has
18 only been one situation where I was not comfortable with the treatment I guess. I
19 informally mentioned it to a colleague, but we were going into the [Name of Host
20 City] Olympics so taking it further wouldn't lead to anything else but friction in
21 the team, so I left it. (Participant 40)

22 Moreover, the participants spoke of how the culture was determined by the current head
23 coach or recent athletic performances. A final stressor in this lower-order theme concerned
24 times in which the participants' organizational culture had remained stagnant:

25 The sport is definitely renowned for being stuck in its ways. We are hugely
26 successful as a team and with that comes a resistance to change, so there is very

1 much a mentality of why would we want to change a winning formula? What is
2 that change going to add? Why are we overcomplicating it? There's quite a few
3 older people in the team who are resistant to change, so yes there is a culture of
4 success but there is also a culture which is quite stuck in its ways and resistant to
5 change. (Participant 11)

6 Turning to vision and goals, stressors included process goals not being appreciated by
7 the top levels in the organization or by external bodies. Additionally, the participants spoke of
8 the demands associated with being expected to be able to correctly predict medals that would
9 be achieved in the future. The roles that the sport science and management staff had were also
10 reported to be a stressor for them. Specifically, role-related stressors included a lack of role
11 clarity, new or changing roles, role overload, uncertainty, and overlap. Furthermore, factors
12 impacting roles were also identified stressors for participants (e.g., lack of training to do role,
13 sports rules influencing role delivery).

14 A main role for many of the staff interviewed was to travel with the athletes and team
15 they were supporting. The amount of travel required was identified as a stressor by many
16 participants, and there were also stressors recalled around the making of travel arrangements
17 (e.g., finances restricting travel plans, baggage not booked for equipment, having to make
18 own arrangements) and the travel itself (e.g., lack of space to work in when travelling, lack of
19 English language translator when abroad, poor accommodation). The follow quote illustrates
20 some of the stressors associated with travelling in the role:

21 Travelling to foreign countries can be a stressor because it is often cultures you
22 and the athletes are not used to and therefore this brings in things like hygiene,
23 also what food can you eat, can you drink the tap water, washing your hands, all
24 those sort of things. It can often be entering into the unknown so you are trying to
25 figure it all out as soon as possible and then communicate that around. (Participant
26 33)

1 many sporting organizations have enhanced the size and sophistication of their teams of
2 personnel employed to help athletes seek a competitive advantage (see Wagstaff et al., 2015;
3 2016: Gilmore, Wagstaff, & Jones, 2017). While extant literature can inform understanding of
4 the demands that athletes encounter as a result of the changing organizational face of elite sport
5 (see, for a review, Arnold & Fletcher, 2012), we know little about the organizational stress
6 experiences of the sport science and management staff beyond those of coaches and
7 psychologists. Given the proximal position that these staff hold in facilitating athletic success,
8 such knowledge would be critical to ensure they are optimally supported by their employers
9 and sport psychologists. The purpose of this study, therefore was to explore the organizational
10 stressors encountered by sport science and management staff in elite sport and the
11 consequences of such demands. The results illustrate four main themes of stressors that such
12 staff in elite sport encounter (viz. relationship and interpersonal, physical resource, contractual
13 and performance development, organizational structure and logistical issues) and two main
14 themes of the consequences such stressors can have (viz. emotions and outcomes). Building on
15 extant literature and theory, this study not only moves the primary focus beyond athletes'
16 organizational stress experiences to that of the broader sport science and management staff in
17 elite sport, but it also heralds a significant shift from work conducted with some support staff
18 to date (e.g., coaches, psychologists) which has primarily investigated the first stage of the
19 transactional theory of stress (i.e. stressors) to additionally exploring the emotions and
20 outcomes that such demands can elicit.

21 The findings of this study revealed that the sport science and management staff in elite
22 sport encounter a range of relationship and interpersonal stressors. These demands relate to
23 both the various stakeholders that the staff work with (e.g., leaders and owners, coaches,
24 athletes, colleagues, media) and factors inherent to such interactions (e.g., communication,
25 feedback, expectations). A similar demand was noted in Fletcher et al.'s (2011) study exploring
26 the stress experiences of sport psychologists. Specifically, stressors were identified relating to

1 the quality of relationships that a sport psychologist experiences within his or her workplace,
2 with particular emphasis on others' personality types and a lack of social support. Therefore, in
3 relation to extant literature, the emergence of this higher-order theme in the present study
4 illustrates that relational stressors extend beyond existence in athletic, coaching, and
5 psychological domains (cf. Arnold & Fletcher, 2012; Fletcher et al., 2011; Fletcher & Scott,
6 2010); hence, they also need to be optimally managed by those operating in supporting roles.
7 This is not a surprising stressor for this population given the multidisciplinary nature of support
8 teams in elite sport, whereby individuals function in distinct discipline roles; however, rely on
9 regular and effective interactions to achieve shared performance goals. In light of these
10 findings, it is imperative that organizations and practitioners provide opportunities for a varied
11 sport science and management staff team to, like athletes, improve their cohesion and
12 interpersonal skills. This may take the form of diversity management training (cf. Rothmann &
13 Cooper, 2015) whereby interpersonal relationships among diverse groups are improved via i)
14 raising awareness that differences exist, ii) focusing on how differences influence working
15 together, and iii) identifying how differences can be used to enhance productivity. In addition,
16 sport psychology practitioners might provide assistance to sport science and management staff
17 with particular relational stressors, such as certain interactions (e.g., working with the media;
18 Kristiansen, Abrahamsen, & Pederson, 2017) or specific interpersonal processes (e.g.,
19 managing expectations to work outside of professional expertise; Fletcher & Maher, 2013).

20 Turning to the physical resource stressors that the sport science and management staff
21 in elite sport encounter, many of these were similar to those reported by athletes. Indeed,
22 Arnold and Fletcher's (2012) taxonomic classification similarly reported facilities, equipment,
23 technology, and safety demands. The findings presented here, however, highlight the novel
24 demands that can be triggered by the growing technologicalization of elite sport performance
25 environments (cf. Wagstaff, 2017). Specifically, several participants reported stressors relating
26 to the expectations around and usage of large amounts of data in sport. This can perhaps be

1 explained by the emerging and steadfast acceptance of embedding technology into elite
2 sporting institutions (Williams & Manley, 2014). Such developments are not only having
3 negative consequences for staff, but also can be problematic for athletes through their usage as
4 a disciplinary power, the creation of a surveillance culture, and in the quantification of sport
5 performers (Williams & Manley, 2014). As a result, sport psychologists are advised to work
6 with elite sport organizations, sport science and management staff, and athletes to help manage
7 the stressors emerging from large amounts of data. This could include setting clear data
8 requirements and structures, helping to develop adaptive coping strategies, and improving the
9 ways in which collected data is communicated to coaches and players (cf. Gaudioso, Turel, &
10 Galimberti, 2017; Jin, Wah, Cheng, & Wang, 2015).

11 A main finding to emerge from this study was that the sport science and management
12 staff in elite sport encounter contractual and performance development stressors. Although
13 athletes have reported organizational stressors relating to their finances and career transitions
14 (Arnold & Fletcher, 2012) and coaches have noted workload, career, and job security demands
15 (Fletcher & Scott, 2010), the performance measurement stressor emerges as a novel stressor for
16 sport science and management staff. Since this stressor is likely experienced by coaches as
17 well (i.e. performance being judged on how athletes perform), it is important for organizations
18 to consider the lessons that can be learnt from work and organizational psychology. Indeed,
19 scholars in this domain identify that a performance appraisal conducted with an employee
20 should have a wide range of criteria for evaluation (i.e. trait and behavioral criteria in addition
21 to results/output), be based on a thorough job analysis, and pay attention to unique individual
22 qualities and strengths (Rothmann & Cooper, 2015; van Woerkom & de Bruijn, 2016).
23 Additionally, to better assist sport science and management staff in elite sport with the job
24 insecurity demands they encounter, occupational psychology research illustrates that
25 practitioners can assist employees in developing proactive coping strategies (e.g., setting goals,
26 planning, decision making), enhancing perceptions of control and self-efficacy, reducing role

1 conflict, and strengthening organizational communication (Dewe, O' Driscoll, & Cooper,
2 2010; Keim, Pierce, Landis, & Earnest, 2014).

3 The final higher-order theme of stressors reported by the sport science and management
4 staff in elite sport was organizational structure and logistical issues. A novel finding within this
5 theme is that the organizational culture in elite sport is perceived by some staff as being male-
6 dominated. Whilst there is an abundance of academic research on barriers to women and girls
7 participating (see, e.g., Slater & Tiggerman, 2011) and coaching (see, e.g., Walker & Bopp,
8 2011) in sport, this is the first finding to highlight the necessity for scholars to examine if there
9 is also a gender disparity in the wider support roles. If this is found to exist, it is recommended
10 that sport organizations draw lessons from other domains, such as higher education, where
11 there is a loss of women across the career pipeline. In this domain, initiatives have been
12 developed (e.g., the Athena Swan Charter) to recognize the advancement of gender equality,
13 which include representation, progression, and success for all individuals (Equality &
14 Challenge Unit, 2017). Turning from the organization to a group and individual level, sport
15 psychology practitioners can assist the sport science and management staff with identified
16 climate and role-related issues by enhancing understanding of the strengths each individual can
17 bring to work, and working with leaders and managers to support the allocation of tasks which
18 suit members' preferred styles and ensure a balanced portfolio of individual roles within the
19 group (Rothmann & Cooper, 2015).

20 The findings of this study also highlight that organizational stressors can have various
21 consequences for sport science and management staff in elite sport. Specifically, participants
22 revealed times when the consequences of organizational demands were negative emotions
23 (e.g., anger, frustration) and outcomes (e.g., job performance, mental health and well-being).
24 Whilst the consequences of organizational stressors has not been previously examined from the
25 perspective of sport science and management staff in elite sport research, various job-related
26 strains have been studied in organizational psychology (see, for a review, Cooper, Dewe, &

1 O'Driscoll, 2001). A prevalent consequence of organizational stressors identified in the present
2 study was that the outcome of organizational stressors on the participants' broader lives. There
3 are a number of ways in which psychologists can support individuals experiencing work-life
4 conflict, such as enhancing social support, increasing personal control, and developing coping
5 strategies (Cooper et al., 2001). Furthermore, it is suggested that sporting organizations play an
6 active role in facilitating work-life balance in view of the positive impact it can have on
7 employees' health and well-being, productivity, job satisfaction, and organizational
8 performance (cf. Beauregard & Henry, 2009; Haar, Russo, Suñe, & Malaterre, 2014). The
9 emergence of two themes (e.g., personal and club/organization development) which highlight
10 the positive consequences that organizational stressors can have for sport science and
11 management staff in elite sport illustrates the important role of appraisal. Specifically, it is
12 suggested that practitioners draw from the plethora of work on appraisals with athletes (see,
13 e.g., Bartholomew et al., in press; Jones, Meijen, McCarthy, & Sheffield, 2009) and employees
14 (see, e.g., van Steenbergen, Ellemers, Haslam, & Urlings, 2008) to help staff to enhance their
15 challenge appraisals and minimize those of a more threatening nature when encountering
16 organizational stressors in their role.

17 A main strength of this study was the participants recruited. Specifically, by
18 interviewing 40 staff from various roles, this study was able to garner the first rich and detailed
19 insight into the organizational stressors encountered by some sport science and management
20 staff in elite sport as well as the consequences such demands could have. A limitation,
21 however, was that not all sport science and management roles were represented and the sample
22 only included a small number of females ($n = 7$) in comparison to males. Whilst this latter
23 point may reflect the previously discussed gender disparity of females working in elite sport,
24 future research should look to examine both genders' experiences and if there are any
25 similarities or differences between them. Additionally, future research should look to sample
26 additional sport science and management personnel in elite sport (e.g., performance lifestyle

1 advisors, team doctors) and examine if there are any differences in stressors encountered by
2 those providing different types/levels of support in elite sport (e.g., proximal support versus
3 support at an organizational level). A limitation of this study was the lack of information
4 provided on the dimensions (e.g., frequency, intensity, duration) of the stressors encountered
5 by sport science and management staff. Indeed, whilst Figures 1 and 2 illustrate the number of
6 codes within each theme, they do not represent how often each code was mentioned or its
7 severity for participants. To assess this in future studies, scholars should look to develop a
8 multi-dimensional measure of the organizational stressors encountered by sport science and
9 management staff. Indeed whilst an equivalent measure exists for athletes (Arnold et al., 2013),
10 this study demonstrates that staff also encounter stressors that have not been previously
11 reported by athletes.

12 Once developed, this measure can be used to statistically examine the relationships
13 between organizational stressors and the ways in which sport science and management staff
14 appraise and cope with such demands, as well as the consequences they can have at both the
15 individual (e.g., physiological/neurological markers of strain; cf. Tawakol et al., 2017) and
16 organizational level (e.g., absenteeism, turnover; cf. Olafsen, Niemiec, Halvari, Deci, &
17 Williams, 2017). Indeed, one identified limitation of this study was that it did not explicitly
18 link all organizational stressors to consequences; thus, this would provide a fruitful line of
19 future research inquiry. Developing such a measure will also be useful to inform organizational
20 stress management interventions in elite sport organizations. When intervening, practitioners
21 may draw lessons from organization development practices (Anderson, 2012; Rothmann &
22 Cooper, 2015) where the aim is to improve the effectiveness of organizational systems and to
23 develop the potential of individuals operating within them.

24 To conclude, this study has been the first to explore the organizational stressors
25 encountered by broader sport science and management staff in elite sport and the consequences
26 these demands can have. As sport psychology practitioners are increasingly being asked to

1 work with such staff in elite sport, the findings of this study can provide a clearer
2 understanding of the challenges that such personnel face within their roles and, in doing so,
3 offer valuable insight into their educational needs. Additionally, as many sporting
4 organizations look to enhance the size and sophistication of their teams of personnel to help
5 athletes seek a competitive advantage, the findings can raise employers' awareness of their
6 duty of care to employees and the factors that need to be managed given the proximal position
7 the "team behind the team" hold in facilitating athletic and organizational success.

Footnote

- 1
- 2 ¹Whilst all of the participants in the current study are considered part of the “team behind the
- 3 team” in applied settings, it is acknowledged that these participants all operate at different
- 4 levels of an elite sport organization. For instance, whilst performance directors would not be
- 5 tasked with providing the same type/level of support as those operating more proximally to
- 6 athletes would (e.g., physiotherapists, sport scientists), they still play a crucial role in
- 7 supporting athletes by orchestrating, leading, and managing the program (and its various
- 8 components) that they operate within.
- 9 ²For a full copy of the raw data quotes and codes, please contact the corresponding author.

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1 Figure 1. The organizational stressors encountered by the “team behind the team”.

Example Codes	No of Codes	Lower-order Theme	Higher-order Theme
“Being micro-managed by leader” “Owners questioning decisions”	14	Leaders and owners	Relationship and interpersonal issues
“Coach unsupportive of my initiatives” “Autocratic coach”	35	Coaches	
“Athlete lack of professionalism” “Athletes’ negativity”	28	Athletes	
“Colleagues acting unprofessional” “Disagreement with colleague”	40	Colleagues	
“Media blame staff after injury” “High level of media scrutiny”	8	Media	
“Broken down communication” “Email contact preferred over face to face”	27	Communication and feedback	
“Expectation to perform to highest level daily” “Expectation to have social media presence”	30	Expectations and accountability	
“Having to share facilities” “Poor facilities”	8	Facilities	Physical resource issues
“Lack of equipment” “Having to transport equipment daily”	5	Equipment	
“Technology breaking or failing” “Pressure to turn data around quickly”	24	Technology and data	
“Risk of personal injury in sessions” “Safety hazards in work environment”	2	Safety	
“Working long hours” “Too much work”	16	Workload and hours	Contractual and performance development issues
“Not paid enough for amount done” “Lack of finances to conduct role optimally”	6	Finances and pay	
“Lack of job security” “Work role uncertainty”	3	Job security	
“Being judged on players’ performances” “Lack of individual KPIs”	2	Performance measurement	
“Pressure to stay on top of new research areas whilst doing job” “Poor handover and induction”	6	Career and development	
“Too much paperwork” “Organization decision making too slow”	31	Organizational processes and set-up	Organizational structure and logistical issues
“Male dominated culture” “Blame culture”	21	Organizational culture	
“Top levels don’t appreciate process goals” “Expected to predict future medals”	2	Vision and goals	
“Lack of role clarity” “Role overlap”	14	Roles	
“Not enough space to work in when travelling” “Too much travelling”	28	Travel and accommodation	
“Rules changing the way work is done” “Changes to competition schedule”	4	Sports rules and scheduling	

1 *Figure 2.* The consequences of organizational stressors for the “team behind the team”.

Example Code	No of Codes	Lower-order Theme	Higher-order Theme
“Angry response”	1	Anger	Emotions
“Frustrated at work”	2	Frustration	
“Feeling nervous”	2	Anxiety	
“Constantly questioning job”	3	Cognitions and beliefs	Outcomes
“Depressed”	3	Mental health and well-being	
“Feeling demotivated”	3	Motivation and persistence	
“Fatigue”	3	Physical health	
“Underprepared for sessions”	16	Job performance	
“Impacted player performances”	4	Athlete performances and readiness	
“Taking work home”	3	Work-life balance	
“Pressure on family time”	3	Family and social life	
“Restricted time for personal care”	3	Personal care and finance	
“Helps you develop individually”	4	Personal development	
“Contributes to club success”	1	Club/organization development	