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4 The Psychological Characteristics of Performance under Pressure
5 in Professional Rugby Union Referees
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26 Abstract

27 This study utilized qualitative methods to explore the stressors, appraisal mechanism,
28 emotional response, and effective / ineffective coping strategies experienced by elite rugby
29 union referees during pressurized performances. Participants included seven male rugby
30 union referees from the United Kingdom (*Mage* = 27.85, *SD* = 4.56) who had been officiating
31 as full-time professionals for between 1 and 16 years (*M* = 4.85, *SD* = 5.42). Data revealed
32 that the referees encountered a number of stressors, which were appraised initially as a
33 'threat', and elicited negatively-toned emotions. The referees were able to maintain
34 performance standards under pressure by adopting proactive, problem- and emotion-focused
35 coping strategies which managed effectively the stressors and their emotions. However, the
36 use of avoidance-coping, reactive control, and informal impression management were
37 perceived as ineffective coping strategies, and associated with poor performance and choking.
38 Recommendations are offered to inform the psychological skills training of rugby union
39 referees.

40 *Keywords:* stress process, choking under pressure, clutch performance, coping.

41

42 **The Psychological Characteristics of Performance under Pressure**
43 **in Professional Rugby Union Referees**

44 The ability to cope effectively with the psychological demands of the game is a key
45 determinant of successful rugby union refereeing (see Mascarenhas, Collins, & Mortimer,
46 2004). Indeed, a failure to cope has been associated with referees making inaccurate decisions
47 (Anshel, Sutarso, Ekmekci, & Saraswati, 2014) that can have a significant influence on the
48 game, players, coaches, and the referee's own career progression (Mellick, Fleming, Bull, &
49 Laugharne, 2005). As a result, there has been increased research attention directed towards
50 gaining an understanding of the stressors experienced by referees, the impact of those
51 stressors, and the most effective way referees can manage the stressors to facilitate optimal
52 performance under pressure. This information can then be used to inform mental skills
53 training for aspiring and current referees.

54 Early research in this area (e.g., Goldsmith & Williams, 1992; Rainey, 1999; Rainey &
55 Hardy, 1999) identified performance concerns, fear of physical harm, interpersonal conflict,
56 and time pressures as the four key stressors experienced by referees across different sports
57 (e.g., American football, soccer, ice hockey, volleyball, basketball, baseball, rugby union &
58 softball). Although in most cases, the referees self-reported that these stressors only affected
59 their performance 'moderately' (Rainey, 1999; Rainey & Winterich, 1995; Wolfson & Neave,
60 2007). This body of work focused predominantly on intermediate level referees, and therefore
61 it remains possible that elite / professional referees may encounter stressors that differ from
62 their intermediate counterparts, and which could elicit emotional responses that influence
63 performance substantially. Indeed, in one of the few studies to explore the stress response of
64 high level referees, Johansen and Haugen (2013) found that participants who officiated in the
65 Norwegian Premier League (top-tier) experienced higher levels of anxiety than those who
66 performed in the lower divisions. While the participants in this study suggested their higher
67 level of anxiety did not influence performance, it has been found elsewhere that such an acute

68 emotional response can impair referee performance (see Kamata, Tenenbaum, & Hanin,
69 2002). Therefore, in order to clarify such findings, it remains necessary to examine further the
70 stressors experienced by elite referees, their subsequent emotional response, and the impact
71 this has on their performance.

72 With regards to coping strategies employed by referees, it has been established that
73 emotion-focused approaches (i.e., regulating the emotions experienced as a result of the
74 stressor), and in particular, problem-focused coping strategies (i.e., actively dealing with and
75 altering the stressor) are employed to manage the stressors encountered (see Mathers &
76 Brodie, 2011; Wolfson & Neave, 2007). Voight (2009) also established that referees utilized
77 different coping strategies in response to specific stressors. In his study of US soccer referees,
78 imagery-based coping strategies were adopted to manage the stressor of the media, whereas
79 social support and increased effort were employed in response to the stressor of performance
80 errors. However, in this case, and in much of this earlier work, there was no indication of
81 whether the coping strategies had been effective.

82 While offering a valuable insight into the stress process of referees during performance,
83 the evidence-base consists largely of survey-based studies that have examined perceived
84 stressors, emotional response, and adopted coping strategies as separate entities. Yet, as
85 illustrated by the cognitive-motivation-relational (CMR) theory (Lazarus, 1999), there is a
86 need to examine these psychological concepts as a conceptual unit because of their
87 interdependent relationship during the stress process. Moreover, it is essential that the role of
88 appraisal is considered when examining the stress process, for it determines the emotional,
89 coping and performance outcomes (see Lazarus, 1999; Lazarus & Folkman, 1984).

90 The CMR indicates that the stress process is an on-going transaction between the
91 environmental demands and a person's resources (Lazarus & Folkman, 1984). In essence, if
92 an individual perceives the demands outweigh their resource, they will experience an
93 emotional response, and then engage in coping attempts to manage the situation and their

94 emotions. Critically, this process is determined by the individual's appraisal mechanism. That
95 is, an event will only be considered 'stressful' if it is appraised as personally significant to the
96 individual (Lazarus, 2000). Once this happens, that event (i.e., stressor) will then be appraised
97 negatively or positively. A negative appraisal (harm or threat) results in unpleasant emotions
98 that tend to damage the individual's performance, whereas a positive appraisal (challenge or
99 benefit) leads to pleasant emotions, which can enhance performance (see Lazarus & Folkman,
100 1984). However, the impact of the emotional response on performance can be moderated by
101 further appraisals. Thus, a facilitative appraisal of both pleasant and unpleasant emotions can
102 encourage maintained or even improved performance, and a debilitative interpretation of
103 emotions hold the potential to lower performance standards (Neil, Hanton, Mellalieu, &
104 Fletcher 2011). Importantly, throughout this process the individual will be employing a range
105 of coping strategies in an attempt to manage and re-appraise (as facilitative) the stressor and /
106 or their emotional responses.

107 Recent sport psychology research has begun to explore the stress process of athletes
108 using the CMR as a framework, in order to provide a holistic account of athletic performance
109 under pressure (see Neil, et al., 2011; Nicholls, Polman, & Levy, 2012). However, Neil,
110 Bayston, Hanton and Wilson (2013) offer the only study to date that has explored the stress
111 response of referees through this theoretical lens. In their sample of intermediate and elite
112 level soccer referees, Neil et al. (2013) employed qualitative methods to ascertain that the
113 crowd, previous mistakes, assessors evaluating their performance, confrontation, and players
114 with poor reputations were the main stressors experienced by their participants. Those
115 stressors were initially appraised negatively (threat or harm) which subsequently encouraged
116 unpleasant emotions (e.g., anxiety, anger, guilt, and embarrassment). Of note, the
117 intermediate referees often failed to cope effectively with those emotions, and performed
118 poorly as a consequence. Whereas the elite referees maintained their performance by adopting

119 problem- and emotion-focused coping strategies to either regulate their negative emotions, or
120 (re-)interpret them as facilitative.

121 Through the application of the CMR, Neil et al. (2013) has provided a detailed review of
122 the stress responses experienced by the referees within their study. Yet, it must be noted that
123 only two elite soccer referees were included in their sample. Therefore, additional research is
124 warranted that explores the pressurized performances of elite referees who perform at the
125 highest level, across different sports. Accordingly, through a qualitative approach, and the
126 application of the CMR framework, this study aimed to investigate the stress process of
127 professional rugby union referees when performing under pressure. More specifically, it
128 examined holistically the stressors, appraisal mechanism, emotional response, and effective /
129 ineffective coping strategies of seven professional rugby union referees during clutch
130 (successful) and choking (unsuccessful) performances. In turn, this information can be used
131 to inform theory-driven applied interventions that support the psychological development of
132 rugby union referees.

133 **Method**

134 **Methodology**

135 The aims of this study were addressed through narrative inquiry (Riesmann, 2008),
136 underpinned by a relativist assumption. Accordingly, it is assumed that the experiences of
137 human beings are socially constructed and can be illuminated through narrative. This
138 approach enabled a detailed and holistic examination of the personal meaning that referees
139 attached to their pressurized environment, with particular attention directed towards
140 understanding the temporal ordering of the events which determined their stress process
141 (Smith & Sparkes, 2009). Moreover, narrative inquiry emphasizes the relational nature of the
142 lived experience (Gergen, 1999), thereby affording the opportunity to focus on how
143 ‘significant others’ may have shaped the referees’ experience of performing under pressure.

144 **Participants**

145 After the study gained ethical approval from the research team's University ethics
146 committee, seven male professional rugby referees (*Mage* = 27.85, *SD* = 4.56) were recruited
147 to the study. They had all refereed competitive rugby union matches for a minimum of 7
148 years (*M* = 10.85, *SD* = 3.76), and had been contracted as a professional referee (with the
149 Rugby Football Union; RFU) for between 1 and 16 years (*M* = 4.85, *SD* = 5.42). All
150 participants officiated games regularly within the English Premiership league (i.e., the elite
151 competition for professional rugby union clubs within England), while four of the seven
152 participants had also refereed international test matches within the Six Nations
153 Championship, the Rugby Championship, and Rugby Union World Cup (2007 & 2011). The
154 Six Nations Championship is an international rugby tournament for all top-tier northern
155 hemisphere countries (England, France, Ireland, Italy, Scotland and Wales), and the Rugby
156 Championship is the equivalent competition for southern hemisphere countries (Argentina,
157 Australia, New Zealand and South Africa). While the 'elite group' of professional referees
158 within the RFU consisted of 12 individuals (at the time of writing), only seven were available
159 for interview. Nevertheless, the sample represented an information-rich group of elite rugby
160 union referees who performed frequently under significant levels of pressure. For the purpose
161 of this study, pressure was considered to be any factor or combination of factors that
162 increased the importance of optimal or superior performance (Baumeister & Showers, 1986).

163 **Data Collection**

164 Once informed consent was gained from each participant, individual semi-structured
165 interviews were completed by the lead researcher to explore the referees' stress response
166 associated with their optimal and failed performance under pressure. In particular, the
167 interviews were designed to ascertain in detail: i) the *key* stressors experienced by the referees
168 when performing under pressure; ii) the referees' appraisal of those stressors; iii) the
169 emotional response to the stressors; and iv) effective and ineffective coping strategies
170 employed to manage the stressors / emotional response. Where necessary, probes and

171 prompts were used to ensure that a comprehensive understanding of the referees' experiences
172 was gained (e.g., can you tell me a little more about that?..what do you mean by that?). The
173 lead researcher completed a pilot interview with a retired international level rugby union
174 referee, and after reflecting on the process, deemed no changes to the interview schedule were
175 necessary. Each interview lasted between 70 and 90 minutes, were recorded digitally, and
176 transcribed verbatim. The participants were required to reflect on performances that had
177 occurred within the previous two years to facilitate recall.

178 **Data Analysis**

179 Data were analyzed via thematic analysis (TA), which enabled an in-depth understanding
180 of the material collected, while noting similarities and differences of experiences across
181 participants (Braun & Clarke, 2006). As TA is not wedded to any theoretical framework (see
182 Clarke & Braun, 2015), it is deemed compatible with narrative inquiry, for it enabled a
183 detailed description of the socially constructed experience under investigation (Riesmann,
184 2008), while capturing patterns of meaning across the sample (Braun & Clarke, 2006). The
185 data analysis process was completed by the lead researcher, and followed the stages of TA
186 detailed by Clarke and Braun (2015). Accordingly, it consisted of an inductive and deductive
187 process, that predominantly sought semantic meaning.

188 This analysis began with data familiarization, whereby the lead researcher became
189 immersed with the transcribed interview data (i.e., reading and re-reading), and made notes
190 on any points of interest that emerged. Thereafter, theory-driven line-by-line coding was
191 completed, in which data relating to the key stressors experienced by each referee, the
192 appraisal of those stressors, the subsequent emotional response, and the effective / ineffective
193 coping strategies employed to manage those stressors / emotions were identified and coded.
194 Any similar coding patterns were then clustered into overarching themes representing the
195 relationship between stressors, appraisal, emotional response, coping strategies and
196 performance outcome for each participant. All themes were then reviewed to ensure they

197 reflected the data fully, represented the sample as a whole, and addressed the research aim of
198 the study. Finally, the overarching themes were organized and presented within a narrative,
199 with care taken not to include raw data that may have revealed the identity of the participants.

200 **Trustworthiness of Data**

201 In line with a relativist point of view, trustworthiness of the data was informed by the
202 work of Tracy (2010) who offered eight criteria by which excellence in qualitative research
203 can be judged. To avoid static criteriology, the current study was underpinned specifically by
204 rigor, credibility, sincerity, and resonance (see Sparkes & Smith, 2014).

205 Rigor (sufficient data / time in the field) was primarily achieved through the use of
206 extensive interviews which allowed the participants to explain in detail their lived
207 experiences, and the personal meaning of refereeing under pressure. Moreover, the
208 participants were all information-rich and in a position to discuss at length, a number of a
209 highly pressurized performances where they succeeded (i.e., excelled) and failed (i.e.,
210 choked). As a result, they were able to articulate perceived differences in their stress response
211 across the two performance outcome scenarios. To gain credibility (a detailed representation
212 of the data), the lead author adhered strictly to the stages of TA, as detailed by Clarke and
213 Braun (2015). This encouraged a familiarity with the data, and facilitated robust coding,
214 analysis and reporting of that data. Furthermore, the findings were presented as a narrative
215 which incorporated extensively the participants' raw data, in order to offer an authentic
216 account of their performances under pressure.

217 Sincerity (a study characterized by self-reflexivity) was achieved through a member of
218 the research team acting as a critical friend during the analytical process. This ensured that the
219 lead researcher remained reflexive when constructing the codes, themes, and narrative.
220 Finally, it was intended that resonance (the study having impact on the reader) would be
221 gained though the provision of an evocative and detailed narrative. As a result, athletes
222 (particularly referees) who perform under pressure, and / or practitioners working with those

223 athletes, could make connections with the narrative to inform their own actions (i.e.,
224 naturalistic generalization, Stake, 1995).

225 ## Results and Discussion

226 The following narrative presents a holistic account of the referees' perceived stress
227 response during successful and failed performances under pressure (see Table 1 for an
228 overview). Please note that pseudonyms have been used throughout the narrative to protect
229 the identity of the participants.

230 All participants experienced five key stressors during their pressurized officiating
231 performances, which included *unfamiliarity, performance errors, interpersonal conflict,*
232 *importance of the game, and self-presentational concerns.* It was revealed that all stressors
233 were initially appraised negatively (i.e., threat / harm) and so elicited unpleasant emotions
234 that consisted principally of cognitive and somatic anxiety.

235 Insert Table 1 Here

236 ### Unfamiliarity

237 The most noteworthy stressor identified by all participants was unfamiliarity, which
238 consisted of facing a game situation they had not experienced before. For the most part, this
239 arose when the referees were managing the scrum, using technology, and officiating new
240 teams. Critically, the referees indicated that unfamiliarity was appraised as "highly"
241 threatening, which would lead to a negatively-toned emotional state that was more intense
242 and debilitative than their response to any other stressor. Therefore, each referee suggested
243 that this stressor was difficult to cope with effectively, and so was often associated with their
244 choking experiences. Carl summarized how unfamiliarity had led to an acute debilitative
245 emotional response and a choking episode during one of his performances:

246 That time [when I choked] I had to keep resetting the scrum because I didn't know what
247 was happening…I had 20 scrums and about 15 of them fell on the floor. I didn't
248 understand who was collapsing it. I panicked… I thought Christ, what do I do here!!

249 Worst feeling in the world...I was not in control, [so] I just hoped the ball would come
250 out [of the scrum]…In the end, I penalized someone knowing it wasn't the right
251 decision...the game was a mess.

252 Four of the referees emphasized that choking was more likely to occur when having to
253 manage concurrently a number of unfamiliar tasks. Frank illustrated this point further:

254 It was a local derby…so a big crowd. But [I] arrived to the stadium a little late...so hadn't
255 done my usual routine before the game to ensure everything was in its place... Then the
256 game was being played at such a fast pace…which I wasn't use to…[and so] I had to
257 make decision after decision…Because there were too many things…and new things…to
258 deal with, I was totally overwhelmed…By the time I had thought about my decision, the
259 ball had gone…[so] I ended up making poor decision after poor decision…That was my
260 biggest car crash [choke].

261 As unfamiliarity was perceived to hold the potential to encourage significant
262 performance failure, it was unsurprising that all referees prioritized the development of
263 coping responses in order to manage the stressor effectively. This principally involved the
264 adoption of *proactive-coping strategies* (Aspinwall & Taylor, 1997) which alleviated the
265 likelihood of unfamiliarity arising during the game. For all referees this involved researching
266 the teams they were about to officiate before the game (i.e., patterns of play, recent form, the
267 players / coaches), and using cognitive-general (CG; imagery relating to devising competitive
268 strategies) and motivational general-arousal imagery (MG-A; relating to the management of
269 arousal, relaxation and completive anxiety; see Cumming & Ramsay, 2009) to mentally
270 rehearse the various scenarios (e.g., best and worst case) they were likely to encounter during
271 the game. Dave described how his use of proactive-coping prevented unfamiliarity occurring:

272 It [unfamiliarity] leads to stress. There's always going to be different things
273 happening…different teams, conditions…weather. But you must turn the unfamiliar into

274 familiar with planning. You get in your head what this [game] may look like…how you
275 will respond…That's what helps you stay in control and perform.

276 The CG and MG-A imagery used by the referees during their proactive-coping response
277 included details of how they intended to communicate decisions to players (e.g., verbal tone
278 and body language), and maintain their own emotional control throughout each scenario.
279 Thus, as well as lowering the possibility of unfamiliarity, these type of images were likely to
280 have raised the referees' level of self-confidence prior to performance, for they consisted of
281 successfully executing and communicating decisions, and managing effectively their own
282 emotional state (Hammond, Gregg, Hrycaiko, Mactavish, & Leslie-Toogood, 2012). Indeed,
283 Eddie confirmed how his performance expectations were raised as a result of such imagery
284 during his use of proactive-coping:

285 Preparation is making sure that before I cross the white line I have a good mental picture
286 of what I expect to see, and what I expect to do. This way I am not surprised, and not
287 overwhelmed by anything…I'm then confident I'll do the job well.

288 All referees within this study also suggested they relied on the coping strategy of *seeking*
289 *informational social support* (Rees & Hardy, 2000) to manage unfamiliarity. This included
290 gaining advice from their assigned RFU mentor and guidance from 'experts' on the technical
291 areas of the game they considered likely to elicit unfamiliarity (e.g., at the scrum). Gary
292 explained:

293 I do a lot of work on scrummaging because it is particularly difficult [unfamiliar] for me.
294 I remember this game where I got the scrum totally wrong…That was my worst
295 performance in an International Test as I didn't understand what this prop [player] was
296 doing. I knew I had to work harder on my preparation for the scrum after that. I spoke to
297 XXXX [retired international referee] about scrummaging, as I trust him... I feel prepared
298 now…and better able to cope.

299 **Performance Errors**

All participants identified making performance errors as a key stressor, which they appraised negatively as mistakes held the potential to 'harm' the players, coaches, and their own career prospects. As explained by Adam, "Yesterday, with 20 minutes to go, there were about 15 jobs on the line. The game changed from being a hobby to having jobs at stake. So of course, we [referees] are under massive pressure to get the decisions right." Moreover, Eddie identified, "It just takes one mistake from you and your career is gone…your chance at refereeing in the World Cup, gone. That's the pressure." Three of the referees identified that early in their career they had adopted the avoidance-coping strategy of *denial* after performance errors, and chose not to reflect on poor performances, and / or displaced blame externally. This approach was chosen to protect their ego, although they had come to recognize this was ineffective as they needed to internalize their own errors to improve.

Accordingly, six of the participants identified that they currently utilized the coping strategies of *acceptance* and *ownership* in response to performance errors. This included accepting they were at fault, and if deemed appropriate, admitting their mistake to the players. Not only can accepting and internalizing the performance error in this manner lead to self-development and learning (Anderson, Knowles, & Gilbourne, 2004), it can also prevent the rumination of mistakes (Sarkar & Fletcher, 2014) during the game, and so enable the referee to re-focus on the task. Indeed, this was identified by Dave who suggested:

> When you make a mistake, there's nothing you can do about it. The natural reaction is to try even things up…but you can't, as you lose credibility. It's having the strength of mind to say, 'I missed that one, I'm aware, and I'm sorry'. We have to accept it [in order] to re-focus so we don't make another one [performance error].

In addition, the seven participants identified *reflection* as an essential problem-focused strategy used to cope effectively with performance errors post-game. This is a purposeful, rigorous and systematic process that leads to change and improved performance (Ghaye, Lillyman, & Gillespie, 2000). In this case, reflection was used to move the referees' post-

326 match analysis beyond the technical identification of the correct and incorrect decisions made
327 during the game. All referees initially completed a broad and unguided reflection of their
328 performance, in which they considered whether the performance went well or not. Then, a
329 day or two after the game, they employed guided reflection with a mentor that involved trying
330 to complete a detailed and constructive exploration of the possible underlying causes of their
331 actions. Thus, they reviewed their psychological state which underpinned each decision (both
332 correct and incorrect), allowing for a deeper understanding of why they were made, and why
333 good / poor performances occurred. As explained by Adam, this reflective approach appeared
334 to facilitate learning and protect the referees' confidence after experiencing performance
335 errors: "I am so much more confident now, because I have learnt why I make mistakes and
336 why things have gone well. That means, I understand what it takes to do things right." In
337 addition, and in support of Hanton, Cropley, and Lee (2009), the referees identified that
338 guided reflective practice increased their ability to (re-)appraise other performance stressors
339 as a challenge rather than a threat. As an example, Frank suggested he was able to perceive
340 the stressor of 'an important game' more positively, as a result of reflective practice:

341 By reflecting on my performances, I can see how much better I've got, and what I need
342 to do to get even better…This means I am excited about the big games…I want to be
343 involved…[because] I'm confident that when I'm being tested in front of 80,000 people,
344 I will make the right decisions.

345 **Interpersonal Conflict**

346 Each referee identified that interpersonal conflict was a frequent stressor, whereby the
347 need to prevent / manage player hostility was appraised as threatening and led to negatively-
348 toned emotions. Carl summarized the nature of this stressor by stating, "You're dealing with
349 players under pressure. It's difficult, as you know it won't take much to set them off [act
350 aggressively]. You must manage them, whilst making damn sure you get decisions right."

351 Three referees identified that there had been occasions when they had adopted the *avoidance-*
352 *coping* strategies of rushing or withdrawal during the game in order to disengage from the
353 stressor of interpersonal conflict. This coping-approach led to hasty decisions, deliberate
354 incorrect decisions against players considered responsible for conflict, and in one case (Ben),
355 choosing to blow his whistle to end the game prematurely: "The players weren't listening,
356 there were fights off the ball…the crowd wasn't happy…I didn't have the coping tools to
357 manage the situation…so I blew the whistle to try to end the game early." Eddie also
358 illustrated how the avoidance-coping strategy of withdrawal affected his management of
359 interpersonal conflict detrimentally:

360 I had XXXX [the coach] swearing at me…both teams were all over me. I ended up
361 making a decision I shouldn't have just to get one of them off my back. The game was
362 out of control…I ended up just letting them get on with it. I didn't say anything for 5
363 minutes…I had checked out of the game.

364 The coping strategy of *reactive control* of others was also used by three of the referees in
365 response to interpersonal conflict, whereby they attempted to assert their authority on the
366 game through emotionally-driven (e.g., angry / frustrated) authoritarian communication.
367 However, this escalated player ill-discipline, and for Dave, encouraged choking under the
368 pressure:

369 XXXX [player] was just at me all game. I should have managed him better…walked
370 away…spoken to the captain and let him deal with his player. Instead, I wanted to get
371 one over on him, so I sent him off…It was obvious I was out of control, I felt out of
372 control, and the game then snowballed out of control.

373 Conversely, all referees suggested they had used *proactive-coping* to successfully prevent
374 and / or manage the stressor of interpersonal conflict. As previously indicated, this involved
375 planning and mentally rehearsing how they intended to manage the players' and their own
376 emotions during the game, as well as communicate decisions. Thus, they felt able to

377 (re-)enact those images in real life to maintain control of themselves, the players, and the
378 game.

379 Each referee also suggested that they adopted *emotion-focused coping* strategies during
380 exposure to interpersonal conflict, as they lowered the debilitative emotional response to the
381 stressor (in particular, anxiety) which in turn, facilitated appropriate decision making,
382 effective communication of that decision, and appropriate management of interpersonal
383 conflict. For all seven referees, this involved distancing themselves from the players, with
384 five participants also engaging in deep breathing at that point. In addition, four of the referees
385 employed a process of centering in which they looked towards a specific focal point within
386 the ground (e.g., the scoreboard, corner flags, or their watch), before undertaking deep
387 breathing and motivational self-talk to manage their emotional state. The basic psychological
388 skill of deep-breathing relaxation is advocated widely by sport psychologists as an effective
389 coping strategy for managing somatic and cognitive anxiety (e.g., Kudlackova, Eccles, &
390 Dieffenbach, 2013), while motivational self-talk is accepted to lower cognitive anxiety,
391 increase attentional control, and enhance self-confidence (Tod, Hardy, & Oliver, 2011).
392 Indeed, Ben offered a summary of how such emotion-focused coping strategies facilitated his
393 decisions / actions in response to the interpersonal conflict:

394 [After interpersonal conflict] I'll take myself away from the players. It's just a case of
395 …finding yourself some time to think. I look at a point in the distance, and get control of
396 myself first and foremost with a few deep breaths…I then use a trigger word of 'business
397 like'. That's my trigger for getting into the zone…This then helps the tone, speed and
398 accuracy of what I say next to the players.

399 It is evident that the referees prioritized the regulation of their own emotions to ensure
400 they were in an optimal psychological state before making decisions. While this was the case
401 throughout the game, it was deemed particularly important when faced with the stressor of
402 interpersonal conflict. As explained by Carl, "To control the players when they are starting to

403 lose it [their temper], I have to show that I'm calm and in control...This then translates into
404 them being calm." Thus, it would appear that the process of emotional contagion may be of
405 relevance to successful performances of referees under pressure within this study. Emotional
406 contagion is the automatic synchronization of emotional-states between individuals, whereby
407 emotional expressions are subconsciously imitated (Hatfield, Cacioppo, & Rapson, 1994).
408 While the phenomenon has not been explored in detail within sport, it is accepted that
409 athletes' emotional states can be affected by others. As an example, Totterdell (2000) found
410 the emotions of professional cricket players were linked to the collective mood of their
411 teammates, whereas Tamminen and Crocker (2013) observed athletes regulating their own
412 emotions to encourage their team members to experience positive emotions. While there is an
413 individual difference to emotional contagion susceptibility, highly interdependent settings
414 provide an ideal context for the transfer of affect (Hatfield et al., 1994). Therefore, it can be
415 assumed that the potential for emotional contagion exists within the referee / player dyad, and
416 to minimize interpersonal conflict and encourage players to maintain appropriate emotions
417 (e.g., calm), the referee must portray emotional control. Accordingly, the impact of emotional
418 contagion on refereeing performance is worthy of further consideration.
419 Finally, in the case of three referees, their coping response to interpersonal conflict was
420 informed by experiences gained during their previous occupations. As an example, Eddie
421 stated, "I learnt [in previous profession] that if you shout at someone in a stressful situation,
422 you don't get the best out of them. I take this approach on the field." Similarly, Gary
423 explained: "I was a teacher…so I know how important it is to build a relationship with the
424 players [to manage interpersonal conflict]. I would say my teaching experience has helped me
425 so much. It's probably why I've progressed so quickly".

426 **Importance of the Game**

427 It is unsurprising that the importance of the game was noted as a substantive stressor by
428 the seven referees, as the match outcome often held significant consequence for players,

429 coaches (e.g., winning a title and renewal of professional contracts), and the referees
430 themselves (career progression). Therefore, when about to officiate an important game, all
431 referees appraised the situation as a threat initially, and experienced negatively-toned
432 emotions (e.g., anxiety). In response, *proactive-coping strategies* were relied upon to prepare
433 for the game, mentally rehearse the likely scenarios, and minimize the likelihood of
434 unfamiliarity arising during that fixture. Thereafter, each referee employed both *emotion-* and
435 *problem-focused coping* strategies during the game to self-regulate their emotions and
436 maintain focus on the task respectively.

437 With regards to emotion-focused coping, this involved employing the previously
438 identified relaxation techniques (i.e., deep breathing and centering). Although, it was
439 emphasized by four of the referees that they consciously monitored their psychological state
440 throughout important games so they knew when to utilize the relaxation techniques. As
441 described by Ben:

> 442 I look at a point in the stadium take a deep breath. I stand tall, tap myself on the leg. Then
> 443 I say to myself 'Am I relaxed'? I'll do this routine 20 to 30 times through the game to
> 444 make sure I'm focused and see if I need to change anything.

445 Furthermore, four participants suggested they had benefited from receiving *informational*
446 *social support* from sport psychologists, who had provided advice regarding the use of
447 emotion-focused coping. Gary explained how such guidance had helped him maintain
448 emotional control during important games:

> 449 Because of XXXX [sport psychologist] I have more confidence dealing with them
> 450 [important game]…I can stop a car crash happening [choke], as I can feel it coming... I
> 451 stay in control of myself and the game much better now…no matter what happens".

452 In terms of problem-focused coping strategies employed in response to important games,
453 all seven participants noted they adopted a *task / process focus.* That is, they attended to a
454 "checklist" of behaviors the players needed to follow in order to remain within the laws of the

455 game. The referees held a checklist for each of the key technical areas of the game (e.g., line
456 out, scrum, breakdown, and maul) in order to break the game into distinct, smaller, and
457 manageable parts. Participants also utilized CG imagery to support this task / process focus,
458 for they held a mental picture of how the correct execution (i.e., lawful) of the key technical
459 areas of the game should appear to them. Together, the two strategies encouraged the referees
460 to focus on task-relevant information rather than being distracted by the importance of the
461 game, and thereby enabling effective and efficient identification of the infringement(s). This
462 finding was illustrated by Dave, who explained:

463 You are looking for A, B, C then D. It's very automatic…like a mental tick box. So if A,
464 B or whatever doesn't happen, you make a decision. You have to simplify it this way, so
465 you don't become overwhelmed by the [importance of] the situation. You only need to
466 focus on the processes that gets you to the right decision…This stops the other stuff
467 interfering.

468 It also appeared that having a task / process focus often led to perceptions of control which is
469 acknowledged to raise self-confidence, improve attention, and enhance performance under
470 pressure (Chen & Singer, 2002). As explained by Adam, "Things happen that you can't
471 control, and that's distracting. So I focus on what I can control…my processes [checklist].
472 This gives me confidence that I will make the right decisions". Notably, perceptions of
473 control can also encourage individuals to re-appraise threatening stressors as challenging
474 (Jones, Meijen, McCarthy, & Sheffield, 2009) which appears to be the case for three
475 participants within this study when they experienced the stressor of an important game. As an
476 example, Eddie indicated that:

477 When I feel in control, I feel like I have the reins to the game. I can pull them in tight
478 with a blast of the whistle, or let a few things go to loosen them off…That means, if
479 things start to slide [e.g., player behavior deteriorates] or something unexpected happens

480 [i.e., unfamiliar stressor], I know I can bring the game back to me…When it's like that, I
481 can see the challenges [of an important game] as…exciting.

482 Significantly, two of the referees had employed *avoidance-coping* to manage the stressor
483 of an important game, when they felt "overwhelmed" by the level of anxiety experienced in
484 anticipation of the match. Accordingly, they chose to disengage from the stressor through
485 blocking, denial and withdrawal, and so did not prepare actively for the forthcoming match.
486 However, as avoidance-coping prevents the individual from self-regulating and organizing
487 their thoughts, emotions and actions required to optimize performance (Jordet, 2009), this
488 approach was associated with poor performance and choking. Ben explained how he had
489 choked after adopting avoidance-coping before an important game:

490 Some people say that preparing for the game is pre-judging what's going to happen. But
491 preparing for how teams play, how individuals are likely to act, how set pieces should
492 look, eradicates issues before the game starts. By not preparing, the game looks
493 unfamiliar…and I am slow to react…unfamiliarity leads to stress and it goes wrong.

494 **Self-Presentation Concerns**

495 Finally, all referees reported self-presentational concerns as a stressor during
496 performance, which was appraised negatively, led to debilitative emotions, and could lead to
497 distraction and poor performance. The referees' self-presentational concerns were
498 predominantly a fear of negative evaluation from selectors who were responsible for
499 allocating officials to the high profile matches. However, they were also motivated to portray
500 a positive image to players, coaches, and media in order to avoid criticism that could damage
501 their confidence, professional reputation and future career prospects. As reported by Dave:

502 You know, everybody's judging you. You know everybody will watch that game and
503 have an opinion…about how well you've done or not done. So there is much less
504 pressure at the lower levels as you are less open to [this] criticism. You always need to

505 impress at the higher level. If you make a mistake [then] the players, the coaches, and
506 media will say you've ruined the game…and your career is blighted.

507 Ben also noted that, "If you're going to get selected for the World Cup, you have to impress
508 in every single game. Simple" Finally, Adam confirmed, "It's [refereeing] not an exact
509 science. So if you want to get selected [for the World Cup], you don't just have to think about
510 how you want to referee, you also have to think about how the selectors want you to referee."
511 At times, the referees attempted to cope with these self-presentational concerns through
512 *informal impression management,* which involved trying to offer an overtly positive image to
513 the players, coach, media or crowd in order to gain their admiration. They adopted a
514 'friendly' approach on the field, an informal communication style, offered lenient decisions
515 (e.g., allowing play to continue despite infringements), and occasionally made incorrect
516 decision to placate individuals. All of which were recognized as highly misplaced coping
517 responses that led to poor performances, and paradoxically, negative perceptions from those
518 they wished to impress. As noted by Frank:

519 I have always had a problem with XXXX [premiership team] and I gave them an early
520 decision that I didn't have to in order try and get them on side. Then the crowd, and
521 XXXX [the opposition team] got on top of me. Very quickly, both teams were all over
522 me as they knew I wasn't being accurate in my decision making. In the end I lost it
523 [control of the game]. Total chaos.

524 In contrast, all participants identified that the problem-focused coping strategy of a *task /*
525 *process focus* (i.e., checklist and mental picture of correct player execution) helped them
526 remain focused on the game when experiencing self-presentation concerns. As summarized
527 by Carl:

528 Every game is watched and evaluated by different audiences…and I want to do well so I
529 get selected for the World Cup… But this is a distraction…So I just going through

530 processes [check list]... I have them for the scrum, lineout, tackle…These distractions are
531 always there. But you go through though these processes to keep you focused.

532 This task / process focused coping strategy of using checklists and associated images of
533 correct skill execution was well-rehearsed by all the referees within the study. Therefore, it is
534 likely to have become proceduralized and processed outside working memory during
535 performance. This may be of significance, as during pressurized games the referees' working
536 memory can become occupied with information associated with the stressors encountered
537 (e.g., importance of the game and self-presentational concerns) and emotional response (e.g.,
538 anxiety). Yet, the referees may have been able to remain capable of optimal decision making,
539 as they would have processed their proceduralized checklist / image outside working memory
540 (Eysenck & Calvo, 1992). Put simply, the use of this well-learnt coping strategy may have
541 prevented choking under pressure and encouraged optimal performance, for it enabled the
542 referees to remain focused on the task despite exposure to potentially distracting stressors and
543 emotions (see DeCaro, Thomas, Albert, & Beilock, 2011).

544 **General Discussion**

545 The key stressors experienced by the elite rugby union referees within this study were
546 unfamiliarity, performance errors, interpersonal conflict, importance of game, and self-
547 presentational concerns. The referees also indicated that each stressor was appraised initially
548 as a threat, and so elicited negatively-toned emotions. While these results are similar to those
549 found elsewhere in the literature, there are a number of differences.

550 Performance errors, interpersonal conflict and importance of the game have been
551 identified as stressors by referees across sports and levels (e.g., Goldsmith & Williams, 1992;
552 Rainey, 1999; Rainey & Hardy, 1999). Whereas the stressor of self-presentational concerns
553 has only been identified previously by Neil et al. (2013) in their study of intermediate and
554 elite soccer referees. Self-presentation was perceived as a pertinent stressor by the elite rugby
555 union referees in the current study, for they possessed a strong desire to offer a positive image

556 to others / avoid negative evaluation (Leary, 1992) to gain selection for the higher level
557 matches. As the professional referees would have been exposed to continuous assessment by
558 selectors / coaches, it could have been anticipated that their self-presentational concerns
559 would lessen over time, as a result of becoming accustomed to evaluation (Reeves,
560 Tenenbaum, & Lidor, 2007). However, this was not the case, and so the management of self-
561 presentational concerns is of importance to elite referees, particularly as it can lead to choking
562 under pressure through distraction (see Mesagno, Harvey, & Janelle, 2011).

563 Although a number of studies (e.g., Rainey, 1999; Neil et al., 2013; Voight, 2009) have
564 identified time pressures (conflict between demands of family life and officiating), fear of
565 physical harm, and the crowd as stressors that affect referees, they were not found within this
566 study. This is likely due to the professional context in which the participants worked. That is,
567 by holding a full-time professional contract with the RFU the referees were able to commit to
568 their role while maintaining a work / life balance. Moreover, as they officiated games played
569 by professional athletes, that are observed by large audiences (stadium and television
570 viewers), and where the spectators cannot breach the pitch, it is understandable that the
571 stressor of fear of physical harm was not reported. Interestingly, performing in front of a
572 crowd of 50,000-80,000 was not identified as a stressor, for as inferred by one participant
573 (Ben), sizeable crowds are not particularly “stressful” to the professional referee, as they
574 cannot hear individual abusive comments.

575 A critical difference between the findings of this study and that of previous work, is
576 participants’ perceived unfamiliarity as the most important and debilitating stressor they
577 encountered during pressurized performance. To date, it has not been identified as a stressor
578 experienced by referees within the extant literature, though it has been noted as an antecedent
579 of lowered performance / choking under pressure in athletes (see Hill, Hanton, Matthews, &
580 Fleming, 2010). It has been suggested that this may be due to unfamiliar situations eliciting
581 substantial debilitative anxiety as a consequence of an uncertain outcome (Cerin, Szabo,

582 Hunt, & Williams, 2000; Mellalieu, Hanton, & O'Brien, 2004). It appears therefore, that to
583 perform optimally under pressure, aspiring referees must learn to lessen the likelihood of
584 unfamiliarity arising during the game.

585 As found in previous research (e.g., Mathers & Brodie, 2011; Voight, 2009; Wolfson &
586 Neave, 2007) the rugby union referees adopted various problem- and emotion-coping
587 strategies during performance to manage successfully the stressors and emotional response
588 encountered. This included proactive-coping and informational social support (from mentors,
589 experts and sport psychologists) prior to games; acceptance, ownership, task / process focus
590 and emotion-focused coping during games; and finally, guided reflective practice post-game.
591 Furthermore, and in a similar vein to Voight (1999), they adopted specific coping strategies in
592 response to certain stressors (e.g., relaxation to manage interpersonal conflict; acceptance and
593 reflection to manage performance errors).

594 Proactive-coping was highlighted by each referee as the most significant coping
595 approach, for it averted unfamiliarity and enabled effective coping with other stressors during
596 the game (e.g., interpersonal conflict). As this strategy included generating mental images of
597 how the key technical areas of the game should appear, anticipating the likely patterns of
598 play, and assuming the behavior of players / coaches, the referees could be accused of
599 developing pre-conceived biases that may affect decision making detrimentally. However, the
600 referees emphasized that without proactive-coping, they would not be able to manage the
601 demands of the game, and would make poor decisions or even choke under the pressure. It
602 has been acknowledged elsewhere in the literature, that a proactive-coping approach can
603 enhance an individual's psychological 'resources' (e.g., Schwarzer & Taubert, 2002). Thus, it
604 would appear that the referees within the current study may have extended their capacity to
605 manage, process, and respond appropriately to the expected and unexpected events that arose
606 during a pressurized game, as a consequence of proactive-coping.

607 Finally, this study is the first to identify a number of coping strategies perceived as
608 ineffective by the sample of professional rugby union referees. Specifically, it emerged that
609 adopting avoidance-coping before, during, and after the game failed to regulate the referees'
610 emotional and psychological state, which led to poor performance. Moreover, the adoption of
611 denial in response to performance errors, the employment of reactive control to manage the
612 stressor of interpersonal conflict, and the use of informal impression management to cope
613 with self-presentational concerns, were all suggested by the referees to compromise their
614 emotional control and performance under pressure.

615 **Limitations**

616 While the study has extended current understanding of the stress responses associated
617 with professional rugby union referee performance under pressure, there are a number of
618 limitations that should be noted. The study has relied on the recall of events that occurred up
619 to two years previously. Thus, while important events such as successful and failed
620 performances may be recalled with relative accuracy (Gould, Eklund, & Jackson, 1993), it is
621 accepted that the data are subject to bias. This may explain why the referees within this
622 sample only identified stressors they had appraised as threatening. It is possible they also
623 experienced challenge appraisals, but such events may have been less 'memorable'. With
624 professional rugby union games televised and elite referees often wearing cameras, future
625 research should exploit this technology to stimulate and enhance recall (Houge-Mackenzie &
626 Kerr, 2012).

627 Furthermore, due to the elite nature of the participants, they were able to explore in far
628 more detail their effective coping responses in comparison to ineffective coping strategies.
629 Therefore, it would be advantageous to explore performance under pressure through referees
630 who have excelled under pressure, alongside those who have choked frequently. Finally, this
631 study has recruited a small, but information-rich sample of elite rugby union referees.
632 Therefore, to broaden our understanding of the stress response and coping mechanism of

633 referees, future research should consider including elite participants across sports, and recruit
634 those individuals who play a supporting role in the development of referees (e.g., mentors &
635 selectors). Nevertheless, the study has endeavored to provide a detailed account of the
636 stressors, appraisal mechanism, emotional, and coping response of professional rugby union
637 referees, which can be of use to enhance refereeing performance under pressure.

638 **Practical Recommendations**

639 Accordingly, the findings of the study can be used to inform mental skills training
640 programmes for rugby union referees. Importantly, strategies which minimize unfamiliarity
641 should be a priority, as the stressor appears to hold the potential to impair refereeing
642 performance significantly. This should include the proactive-coping strategies of extensive
643 planning before the game, in which CG and MGA images of various game scenarios are
644 developed by the referee, with the support / guidance of significant others (e.g., mentors and
645 experts). In addition, and with the support of sport psychologists, referees should develop a
646 'tool box' of problem- and emotion-focused coping strategies for use during the game. This
647 includes a well-learnt checklist for a task / process focus, that can facilitate attentional
648 control. Then, to manage their own emotions, and those of the players, the referee should
649 develop emotional-focused strategies that include deep breathing, centering and self-talk.

650 Additionally, it would appear that reflective practice post-game is advantageous when the
651 referee must cope with, and learn from performance errors. Therefore, the inclusion of
652 reflective practice training for referees is likely to be of benefit (see Cropley, Miles, Hanton,
653 & Niven, 2007). Mentors, coaches and selectors involved with rugby union referee
654 development should also consider their role in cultivating a climate in which the referees are
655 encouraged to take ownership of their performance errors. Thus, rather than fear criticism and
656 non-selection, the referees are encouraged to embrace mistakes as a learning opportunity.
657 Finally, the professional referees suggested they had benefitted from transferring skills they
658 had learnt in non-sport domains (i.e., previous occupations) on to the rugby pitch.

659 Accordingly, young referees who are currently being “fast-tracked” through the
660 developmental system may value ‘life skills’ coaching that supports thriving under pressure
661 (e.g., Enhancement of Leadership Intercommunication Teamwork and Excellence, ELITE;
662 see Jones & Lavallee, 2009).

663 **Conclusion**

664 This study is the first to explore the key stressors, and associated appraisal mechanism,
665 emotional response, and effective / ineffective coping response experienced by a sample of
666 professional rugby union referees. The participants perceived they experienced similar key
667 stressors (unfamiliarity, performance errors, interpersonal conflict, importance of game, and
668 self-presentational concerns) which reportedly were appraised as threatening, and which led
669 to an unpleasant emotional response. The referees indicated they were able to cope effectively
670 with the stressors and their negative emotions through proactive-, problem-, and emotion-
671 focused coping strategies. Of particular importance was the use of proactive-coping to
672 minimize the occurrence of unfamiliarity which appeared to hold the most potential to affect
673 performance negatively. Certain coping strategies were also suggested to be effective in
674 response to specific stressors. Conversely, the referees proposed that the adoption of denial,
675 avoidance-coping, reactive strategies, and informal impression management in response to
676 stressors, led to under-performance and choking under pressure.
677

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821

822 Table

823 *Table 1*. A summary of stressors and coping strategies adopted by professional rugby union
824 referees during pressurized performance.
825

Stressors	Coping Response (effective)	Coping Response (ineffective)
Unfamiliarity	Proactive-coping Informational social support	
Performance Errors	Acceptance Ownership Reflective practice	Denial
Interpersonal Conflict	Proactive-coping Emotion-focused coping	Avoidance-coping Reactive control
Importance of Game	Proactive-coping Emotion-focused Task / process-focus Informational social support	Avoidance-coping
Self-Presentation Concerns	Task / process-focus	Informal impression management

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