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**Organizational stress in high-level field hockey: Examining transactional pathways  
between stressors, appraisals, coping and performance satisfaction**

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**Abstract**

This study investigated transactional pathways between organizational stressors and their underpinning situational properties, appraisals, coping, perceived coping effectiveness (PCE) and performance satisfaction in athletes. Ten high-level field hockey players were interviewed. Data relating to stressors, situational properties, appraisals and coping were analysed using directed content analysis. Mean PCE scores were calculated and subjective performance satisfaction data were categorised as satisfied, neutral, or dissatisfied. A variety of organizational stressors was reported, which were underpinned by five situational properties. Challenge, threat and harm/loss appraisals were experienced and problem solving was the most commonly reported family of coping. High PCE was not always associated with performance satisfaction. Performance satisfaction was, however, linked to the appraisal experienced. A battery of stress management techniques and ways of coping is useful for optimising appraisals and alleviating negative outcomes of stress.

**Keywords**

Interviews, situational properties, transactional alternatives, visual analytical diagrams

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## 47 **Introduction**

48 Sport psychology research has unearthed a multitude of organizational stressors that  
49 sport performers can encounter during their athletic career [see, for a review, 1]. Recent  
50 research has shown that athletes generally appraise these demands negatively [e.g. 2] and  
51 attempt to cope with them using a variety of coping strategies [e.g. 3]. Although this research  
52 has begun to reveal the nature and scope of performers' organizational stress experiences,  
53 Fletcher, Hanton and Mellalieu [4] argued that researchers should progress beyond  
54 investigations of discrete stress components (e.g. stressors, appraisals, coping) and toward  
55 more comprehensive examinations of complex stress phenomena.

56 Organizational stressors (e.g. spectators, roles, selection and position insecurity) have  
57 been defined as 'environmental demands (i.e., stimuli) associated primarily and directly with  
58 the organization within which an individual is operating' [4, p. 329]. Research findings  
59 suggest that athletes experience and recall more organizational-related demands than  
60 competitive-related demands [5], that elite athletes encounter more organizational stressors  
61 than non-elite athletes [6] and that multiple organizational stressors are linked to athlete  
62 burnout [7]. A critical factor in understanding sport performers' reactions to organizational  
63 stressors is the underlying situational properties of such demands [2]. Lazarus and Folkman  
64 [8] proposed seven<sup>1</sup> situational properties of stressors that relate to human stress transactions  
65 and determine the potential for a stressful appraisal.

66 The situational properties of stressors are: (a) *novelty*, which refers to the effect of  
67 prior knowledge; (b) *event uncertainty*, which pertains to the probability of an event  
68 occurring; (c) *imminence*, which refers to the amount of time before an event occurs; (d)

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<sup>1</sup> Eight situational properties were suggested by Lazarus and Folkman [8] but the property termed *predictability* refers to animal (non-human) models of stress [2]. Therefore, seven properties, including that termed event uncertainty which was proposed instead of predictability, should be used when studying human stress transactions [8].

69 *duration*, which relates to how long stressful events persist; (e) *temporal uncertainty*, which  
70 pertains to situations when the individual is unsure of the precise timings of an event; (f)  
71 *ambiguity*, which refers to situations where the necessary information required to make an  
72 appraisal is unavailable or insufficient; and (g) *timing in relation to life cycle*, which is  
73 concerned with the contextual properties that define the timing of an event. Within the sport  
74 psychology literature, two studies have used these situational properties to investigate  
75 performers' appraisals. In the first study, Thatcher and Day [9] concluded that all of the  
76 properties were pertinent to their sample of trampolinists'. In the second study, Didymus and  
77 Fletcher [2] found that temporal uncertainty was the only property that was not influential in  
78 swimmers' appraisals of organizational stressors.

79 Transactional stress theory conceives appraising to be an evaluative process that is  
80 influenced by an individual's beliefs, values and or goals [cf. 8]. Three types of primary  
81 appraisal exist: *irrelevant*, *benign-positive* and *stressful* [8]. Under the rubric of stressful  
82 appraisals, there are three possible transactional alternatives: *harm/loss* appraisals, which  
83 arise when damage to the individual has already occurred; *threat* appraisals, which arise  
84 when there is a possibility of such damage occurring in the future; and *challenge* appraisals,  
85 which arise when the individual feels enthusiastic towards the struggle that will ensue [8].  
86 Appraisals have been suggested to be the pivotal aspect of sport performers' organizational  
87 stress experiences [2] and are closely linked to coping [10].

88 From a transactional perspective, coping is defined as 'constantly changing cognitive  
89 and behavioural efforts to manage specific external and/or internal demands that are  
90 appraised as taxing or exceeding the resources of the person' [8, p. 141]. One approach to  
91 classifying coping is to group strategies according to a single function in adaptation (e.g.  
92 problem- and emotion-focused coping) or a single topological distinction (e.g. appraisal-  
93 focused coping, approach and avoidance). However, recent research [11] has challenged these

94 groupings because, amongst other reasons [see, for a review, 12], they may not adequately  
95 represent the ways of coping within them. Skinner, Edge, Altman and Sherwood [12]  
96 developed a hierarchal system of action types, which allows lower-order coping categories to  
97 be grouped according to their (multiple) functions in adaptation and their (multiple)  
98 topological features. They suggested that such a system should be used to ‘span the  
99 conceptual space between individual instances of coping . . . and meaningfully link them to  
100 coping as an adaptive process’ (p. 248).

101         The classification system proposed by Skinner and colleagues [12] presents 12  
102 families of coping. These coping families are: *problem-solving* (adjust thoughts and or  
103 actions to be effective), *information seeking* (find additional contingencies), *helplessness*  
104 (find the limits of one’s actions), *escape* (escape the noncontingent environment), *self-*  
105 *reliance* (protect available social resources and attend to one’s goals), *support seeking* (use  
106 available social resources), *delegation* (find the limits of one’s resources), *social isolation*  
107 (withdraw from the unsupportive context), *accommodation* (flexibly adjust preferences or  
108 goals to the available options), *negotiation* (find new options or select new goals), *submission*  
109 (give up on preferences or goals) and *opposition* (remove perceived constraints). In the sport  
110 psychology literature, two studies [11,13] have used these coping families to deductively  
111 classify the ways that sport performers cope with stressful situations. The findings of these  
112 studies indicate that Skinner et al.’s [12] categorisation provides opportunities to construct  
113 new understanding of coping in sport.

114         Coping effectiveness is defined as the degree to which ways of coping are effective in  
115 alleviating negative responses to stressors [10]. This concept is not fully understood but, in  
116 sport, the most tested model of coping effectiveness is the goodness-of-fit model [e.g. 14],  
117 which proposes that effective coping depends on the fit between the objective situation, the  
118 appraisal of the situation and coping. Other research findings have provided support for the

119 choice of coping strategy model, which suggests that some ways of coping (e.g. positive self-  
120 talk) are inherently more effective than others (e.g. negative self-talk) and that an individual's  
121 choice of coping is linked to anxiety direction [e.g. 15]. Other models of coping effectiveness  
122 [see, for a review, 16] include the automaticity approach [17], the outcome model [e.g. 14]  
123 and the path analysis model of coping effectiveness, self-efficacy, control and performance  
124 [18].

125 Sport psychology researchers have recognised the need for studies that explore the  
126 relationships between the aforementioned components of organizational stress transactions  
127 [cf. 2,4,6,7,11]. Indeed, researchers are yet to fully examine organizational stress processes in  
128 sport performers and, importantly, the transactional pathways between the main components  
129 of these processes. Therefore, the purpose of this study was to investigate the transactional  
130 pathways between organizational stressors and their underlying situational properties,  
131 appraisals, coping, perceived coping effectiveness (PCE) and subjective performance  
132 satisfaction in athletes.

### 133 **Methodology and methods**

#### 134 *Study design*

135 A collective case study [19] approach was adopted for this study. This approach is  
136 helpful when the aim is to construct new knowledge of a phenomenon [20] and is particularly  
137 beneficial when working with theory to understand participants' experiences. Further, a  
138 collective case study is advantageous when attempting to answer 'how' questions [20]. Thus,  
139 this approach was appropriate for the present study because the aim was to highlight the  
140 transactional pathways between components of stress transactions and, thus, illuminate how  
141 these components are linked in a specific sample of participants.

#### 142 *Participants*

143 Ten female field hockey players ( $M_{\text{age}} = 21.20$ ,  $SD = 1.99$  years,  $M_{\text{experience}} = 12.50$ ,

144  $SD = 2.95$  years) who were members of the same field hockey team participated in this study.  
145 Each participant was competing in the Investec Women's Hockey League, which features the  
146 40 best women's field hockey teams in England, at the time of data collection. The sampled  
147 players had a range of experience within and outside of the team that they were competing  
148 with at the time of the study. For example, one of the participants had been with the team for  
149 six years while another participant was new to the team but had extensive experience  
150 competing in the Investec Women's Hockey League and had international playing  
151 experience. Each member of the team engaged with the following team training sessions on a  
152 weekly basis: two pitch based training sessions, two gym based strength and conditioning  
153 sessions and one or two matches per week depending on the competitive calendar. The team  
154 was situated inside the top 20 league teams (based on points earned) and consisted of the  
155 players, one male head coach, one male strength and conditioning coach and numerous  
156 support staff (e.g. a physiotherapist) that the players could access on request. The players  
157 were purposefully sampled [21] because elite athletes appear to encounter more  
158 organizational stressors than non-elite athletes [6]. A theory-based variation of purposeful  
159 sampling [21] was used to recruit participants from whom the researchers could learn about  
160 issues of central importance to the purpose of the study, while exploring manifestations and  
161 variations of transactional stress theory [8].

#### 162 *Procedure*

163 Following institutional ethical approval, contact was made with the coach of a hockey  
164 team, the nature of the study was outlined and the researcher was granted permission to  
165 approach the players ( $n = 15$ ). Potential participants were informed of the purpose and nature  
166 of the research and that participation or non-participation would not affect their position on  
167 the team. Assurance was given that participation was voluntary and that pseudonyms would  
168 be used during presentation of the results. Those participants ( $n = 10$ ) who volunteered to

169 take part in the study read and signed an informed consent form, completed a demographic  
170 details sheet and returned both documents to the researcher.

### 171 *Data collection*

172 *Interview guide.* In line with the methodological framework for this study, an  
173 interview guide was developed to construct knowledge of participants' stress transactions.  
174 The guide facilitated the construction of new knowledge on a joint basis between the first  
175 named author and the participants [see 20] by including both structure and flexibility.  
176 Therefore, the guide allowed the researchers to gather information about the participants'  
177 experiences [22] that were most relevant to the purpose of the study. Previous organizational  
178 stress research in sport and the authors' reading about and discussions of the relationships  
179 between stress components were used during the development of the guide. The guide was  
180 piloted with three recently retired field hockey players to ensure that the questions and  
181 terminologies elicited information that addressed the aims of the study. Subsequently, minor  
182 refinements to the instructions and language were made. These refinements included  
183 substituting technical terms for more comprehensible terms (e.g. 'appraisals' was changed to  
184 'evaluations').

185 The final guide<sup>2</sup> consisted of five sections. The first section contained introductory  
186 comments and instructions to the participants. The instructions asked each participant to  
187 answer the questions in a candid way, to take time to recall the events that were being  
188 discussed and to inform the interviewer if they could not recall the answers to any of the  
189 questions. In the second section of the interview, the participants were asked to list all of the  
190 organizational stressors that they could recall from the current field hockey season. A  
191 trustworthiness procedure [23] was employed at this stage to check that each participant  
192 understood the key terms (e.g. organizational stressors and coping) that represented the

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<sup>2</sup> The interview guide can be obtained from the corresponding author.



193 conceptual underpinning of this study. At this point, the interviewer and the participant cross-  
194 referenced each recalled stressor with Fletcher et al.'s [4] definition to ensure that subsequent  
195 information was relevant to the purpose of the study. The third section of the interview  
196 involved a series of six questions that were asked in relation to each stressor that the  
197 participant had listed in the previous section. In this section, the interviewer asked one open  
198 question relating to the stressors experienced and three targeted questions [24] referring to the  
199 situational properties of the stressors, the athlete's appraisal and her ways of coping. Two  
200 closed questions were asked to gather information about PCE (rated on a five point Likert-  
201 type scale) and subjective performance satisfaction (recorded as dissatisfied, neutral, or  
202 satisfied). When each participant had answered the six questions in relation to each stressor  
203 recalled during the first section of the interview, the interviewer asked if there were any  
204 additional stressors that she had experienced but not previously mentioned. This represented  
205 the fourth section of the interview guide. In the instances ( $n = 5$ ) that the participant reported  
206 additional stressors, the researcher conducted section three of the interview guide again,  
207 which involved asking the six questions in relation to each of the newly identified stressors.  
208 The fifth section of the interview guide involved a series of questions about the interview  
209 procedure (e.g. 'do you feel that you were able to tell your fully story?') to conclude the  
210 interview and generate feedback from the participants.

211 *Interview protocol.* Each interview was arranged at a convenient time for both the  
212 participant and the researcher. All of the interviews were conducted face-to-face to facilitate  
213 interviewer and interviewee interaction [25], were recorded using a digital recording device  
214 and lasted between 49 and 89 minutes ( $M_{length} = 68, SD = 13$ ). Each interview was carried out  
215 during the last two weeks of the 2010-2011 competitive field hockey season to maintain a  
216 close proximity to the participants' transactions and to facilitate recall.

217 *Data analyses*

218           The interviews were transcribed verbatim and the transcripts were read and re-read to  
219 ensure familiarity with the content. The data relating to key components of stress transactions  
220 (i.e. organizational stressors, situational properties, appraisals and ways of coping) were  
221 analysed using directed content analysis [24]. When using a directed approach, existing  
222 theory or literature is used to focus the analysis procedure [24]. This was relevant for the  
223 current study because it allowed the data relating to components of stress transactions to be  
224 categorised according to previous literature while providing novel insight regarding  
225 transactional pathways between the components. The first stage of the analysis involved  
226 using elements of transactional stress theory [8] to highlight key concepts within the  
227 transcripts that could be used as initial coding categories [26]. During this phase of the  
228 analysis, a colour coding system was used whereby each component of each stress transaction  
229 was highlighted with the same colour to maintain the links between each participant  
230 experience. Once all of the text that represented a stressor, situational property, appraisal, or  
231 way of coping had been identified, operational definitions for each category were developed  
232 [24]. The categories were then iteratively and recursively compared to previous stress and  
233 coping research [e.g. 1,8,9,12] before being grouped into general dimensions. Mean PCE  
234 scores were calculated for each way of coping and data relating to subjective performance  
235 satisfaction were grouped as satisfied, dissatisfied, or neutral. Following the classification  
236 decisions, visual analytical diagrams were created that represented the codes and general  
237 dimensions that had been constructed. These diagrams were created to highlight pathways  
238 between stress components and, thus, address the purpose of the study. Each diagram  
239 illustrates a heuristic representation of one general stressor dimension.

#### 240 *Research quality*

241           Researchers have identified a variety of criteria for evaluating the quality of  
242 qualitative inquiry [e.g. 27]. The authors of this study approach criteria from a relativist locus

243 and, therefore, see them as characterising values that influence judgments about research  
244 [28]. One such criterion deemed appropriate for the context of this research is confirmability  
245 [20], which was enhanced in this study by the authors' reflexive self-awareness. Specifically,  
246 the authors recognised researcher biases [21] by discussing the perspectives that were brought  
247 to the study and how these may have affected data collection, analysis and presentation [20].  
248 Reflexivity and sincerity [29] were enhanced by a critical friend [30] who was not involved  
249 with the data collection or analysis but was present throughout the research process. This  
250 friend is an expert in qualitative data analysis and encouraged reflection on and exploration of  
251 alternative interpretations as they were constructed [30].

252 To engage in reflexive elaboration and provide opportunities for enhanced  
253 understanding [20] each participant's visual analytical diagram was sent to her with a de-  
254 briefing pack. This pack consisted of a cover letter, an overview of key terms that represented  
255 the conceptual underpinning of the study and a feedback sheet. Despite debate about the use  
256 of this method [see e.g. 20,31], it was deemed appropriate for the current study because it was  
257 important to explore the trustworthiness of the researchers' interpretations that were used to  
258 create the visual analytical diagrams. These diagrams are a novel and unusual way of  
259 representing qualitative data but were influential in allowing the researchers to 'show', rather  
260 than 'tell', the theory-focused findings and, thus, enhance the credibility of the results [29].

## 261 **Results**

262 The data are presented in four subsections that each includes a visual analytical  
263 diagram (see Figures 1-4) representing one general dimension of stressors. Each subsection is  
264 accompanied by narrative that includes quotes relating to each general dimension. This  
265 approach allows detailed descriptions of co-constructed knowledge relating to transactional  
266 pathways to be reported.

267 *Leadership and personnel issues*

268           The participants reported six stressors that were related to leadership and personnel  
269 issues (see Figure 1). Four situational properties underpinned these stressors. Some of the  
270 stressors in this general dimension were appraised in a similar way (e.g. spectators were  
271 appraised as a challenge), whereas others were appraised in different ways (e.g. performance  
272 feedback was appraised as a threat and a challenge on different occasions). Problem solving  
273 (n = 11) was the most commonly reported coping family when participants experienced  
274 leadership and personnel issues. Overall, the perceived most effective ways of coping with  
275 stressors in this general dimension were escape (PCE = 4.00), self-reliance (PCE = 4.00), and  
276 problem solving and information seeking (PCE = 4.00) (see Figure 1). There were similar  
277 frequencies of satisfaction (n = 17) and dissatisfaction (n = 18) with performance. The  
278 participants were most likely to be satisfied with their performance when they had appraised  
279 the stressor as a challenge and had employed ways of coping within the problem-solving  
280 family.

281           The following quote that was reported by one of the participants, Rhianna  
282 (pseudonym), demonstrates the transactional pathways during one of her stressful encounters.  
283 Rhianna described the stressor that she encountered (spectators), the underpinning situational  
284 property (novelty), her appraisal of the stressor (challenge), the ways that she coped (escape),  
285 her PCE (four) and how she perceived that this stressor influenced her performance:

286           This was a real stand out event because it's not very often we get spectators. I think  
287 we weren't used to it, it was an event that hadn't occurred before . . . I quite often use  
288 them [the spectators] to spur me on and I like people watching and I use it as a  
289 positive way to my performance . . . Personally I try to not listen to what they're [the  
290 spectators] saying. I try to just, almost hear it as noise . . . I'd say they [my ways of  
291 coping] were effective. Four [out of five] . . . It [the spectators] had a positive  
292 influence on my performance.

293 *Cultural and team issues*

294 The participants reported five stressors that were related to cultural and team issues  
295 (see Figure 2). These stressors were underpinned by three situational properties. Some of the  
296 stressors in this general dimension were appraised in the same way by different athletes (e.g.  
297 team atmosphere and support was appraised as a threat) whereas interaction with teammates,  
298 for example, was appraised as a challenge by two participants, as a threat by another  
299 participant and with a sense of harm/loss by another. A combination of accommodation and  
300 problem solving ( $n = 4$ ) coping was the most commonly reported way of coping when the  
301 participants experienced cultural and team issues. Overall, the perceived most effective ways  
302 of coping with stressors in this general dimension were problem solving (PCE = 4.00), and  
303 opposition and support seeking (PCE = 4.00) (see Figure 2). The participants most often  
304 experienced dissatisfaction with their performance ( $n = 5$ ) when they encountered stressors  
305 relating to cultural and team issues. The participants were most likely to be satisfied with  
306 their performance when they had appraised the stressor as a challenge and had combined  
307 ways of coping within the accommodation and problem solving families.

308 The participant quote below is from Lucy (pseudonym) who described how the  
309 different components of one of her organizational stress experiences were related.  
310 Specifically, Lucy describes the stressor that she experienced (interaction with team mates),  
311 the situational property of that stressor (ambiguity), her appraisal (threat), her way of coping  
312 (escape), her PCE (three) and the perceived influence of the stressor on her performance:  
313 When [new players] came in they were quite cocky, quite arrogant and I was trying to  
314 get them to do it how *we* do it as a team. So in terms of what made it stressful, I  
315 wasn't quite sure what was going on . . . I was unsure about whether the new girls  
316 would gel with the rest of us and how things would work out . . . It was threatening  
317 'cos your team cohesion is important and I want everyone to be committed to the

318 team and I thought they were self-centred so that's not good for anyone . . . I coped by  
319 escaping the situation, it's not my place to get too involved and I'd rate my coping as  
320 three outa five. Yeah, a three, not perfectly effective but not bad. [The stressor]  
321 definitely made me dissatisfied with my performance 'cos they [the new players]  
322 didn't help anything.

### 323 *Logistical and environmental issues*

324 The participants reported five stressors that were related to logistical and  
325 environmental issues (see Figure 3). Five situational properties underpinned these stressors.  
326 Some of the stressors in this general dimension were appraised in a similar way (e.g. travel  
327 was appraised as a threat) whereas others were appraised in different ways (e.g. selection was  
328 appraised as a challenge, a threat and with a sense of harm/loss on different occasions).  
329 Support seeking (n = 5) and problem solving (n = 5) were the most commonly reported  
330 coping families when participants experienced logistical and environmental issues. Overall,  
331 the perceived most effective ways of coping with stressors in this general dimension related  
332 to the accommodation (PCE = 4.00), support seeking (PCE = 4.00) and escape (PCE = 4.00)  
333 families of coping (see Figure 3). The participants most often experienced performance  
334 dissatisfaction (n = 12) when they encountered stressors relating to logistical and  
335 environmental issues. The participants were most likely to be satisfied with their performance  
336 when they had appraised the stressor as a challenge and had employed ways of coping within  
337 the support seeking family.

338 Below is a quote from one of the participants, Katherine (pseudonym), who described  
339 the transactional pathways during one of her stressful encounters. In this quote, Katherine  
340 outlines the stressor (selection), the underpinning situational property (timing in relation to  
341 life cycle), her appraisal of the stressor (challenge), the ways in which she coped (support  
342 seeking), her PCE (four) and how she perceived that this stressor influenced her performance:

343           Yeah, selection is a big one. It's stressful because we find out late on Thursday night  
344           whether we will play and we play [matches] on Saturdays. So it's a timing thing,  
345           selection happens too close to matches. It is a challenge though for me, not a threat or  
346           harm or loss . . . Erm, well, coping wise I talk to my teammates and ring my mum and  
347           dad for support and that's quite effective, probably a four, yeah, effective so a four.  
348           When I think about this, how this stressor impacted upon my hockey, I was satisfied  
349           with my performance. If I'm selected then it spurs me on and helps me to play my  
350           best and that meant I'm satisfied with how I've played.

351    *Performance and personal issues*

352           The participants reported three stressors that were related to performance and personal  
353           issues (see Figure 4). These stressors were underpinned by five situational properties. All of  
354           the stressors within this general dimension were appraised in different ways on different  
355           occasions (e.g. position insecurity and transitions was appraised as a challenge and with a  
356           sense of harm/loss). Problem solving (n = 5) was the most commonly reported and perceived  
357           most effective (PCE = 4.20) family of coping when participants experienced performance and  
358           personal issues (see Figure 4). The participants most often experienced neutral performance  
359           satisfaction (n = 7) when they encountered stressors within this general dimension. The  
360           participants were most likely to be satisfied with their performance when they had appraised  
361           the stressor as a challenge and had either employed ways of coping within the support  
362           seeking family or had combined ways of coping from the problem solving and self-reliance  
363           families.

364           The participant quote below is from Sophie (pseudonym) who described how the  
365           different components of one of her organizational stress experiences were related. Sophie  
366           outlined the stressor that she encountered (position insecurity), the underlying property of the  
367           stressor (duration), the appraisal that she made (challenge), the coping strategy that she used

368 (support seeking), her PCE (four) and the perceived influence of this stressor on her  
369 performance:

370 Just knowing this girl would come back at some point made me feel insecure. I knew  
371 she'd be back and my shirt would be on the line. I played the games up to Christmas  
372 and thought 'oh, is she going to come back after Christmas?' and then she didn't so  
373 the more you play the more you get comfortable. So yeah, it dragged on . . . Erm, it  
374 was a challenge because it challenged me to carry on and play well. And coping? Well  
375 y'know, I'd ring my Mum and say 'I don't know whether she's coming back' and  
376 she'd say 'well you've gotta carry on so just try and cope and be part of the team' and  
377 that was a four out of five in effectiveness . . . I'd say I was neither satisfied nor  
378 dissatisfied from a performance point of view and this particular situation.

### 379 **Discussion**

380 Using a semi-structured interview method, we explored the transactional pathways  
381 between organizational stressors and their underlying situational properties, appraisals,  
382 coping, PCE and subjective performance satisfaction in high-level athletes. This study is the  
383 first to suggest a link between components of organizational stress transactions (e.g.  
384 appraisals, coping, PCE) and satisfaction with performance. The findings highlight the  
385 complex nature of the organizational stress process in sport performers and help to develop a  
386 more complete understanding of stress transactions.

387 Data collected in this study support and extend previous research examining  
388 organizational stressors in sport and the situational properties of these demands. In line with  
389 previous research [e.g. 1], this study demonstrates a wide range of organizational stressors  
390 that high-level sport performers encounter. In addition, the findings support the results of  
391 Didymus and Fletcher [2] because there appears to be a link between the situational  
392 properties of stressors and sport performers' appraisals. This study extends previous research



393 by providing a more detailed examination of transactional stress theory [8] and the  
394 relationship between stressors, situational properties and appraisals. To illustrate, the findings  
395 show that the stressors (e.g. training structure) that were underpinned by more than one  
396 situational property were associated with more than one transactional alternative (e.g. threat,  
397 harm/loss), whereas the stressors (e.g. spectators) that were underpinned by one situational  
398 property were largely associated with one transactional alternative (e.g. challenge). Thus, it  
399 appears that different situational properties can underpin one stressor at the same or at  
400 different points in time and that these properties may be influential in determining the  
401 transactional alternatives that an athlete experiences. This observation may explain why  
402 individuals cognitively react to organizational stressors in different ways and why positive  
403 and negative appraisals are experienced in response to similar situations.

404         Five of the seven situational properties proposed by Lazarus and Folkman [8] were  
405 reported to be influential in participants' organizational stress experiences, the exceptions  
406 being temporal uncertainty and imminence. This finding partially supports the results of  
407 previous research [9], which demonstrated that all of the situational properties were relevant  
408 to sport performers. Didymus and Fletcher [2] found that imminence was associated with the  
409 greatest number of threat appraisals and, therefore, it is surprising that the participants in the  
410 present study did not perceive the imminence of an event to be influential in their stressful  
411 experiences. The performers studied in Didymus and Fletcher [2] operated within an  
412 individual sport, whereas the participants in the current study engaged in a team sport, and  
413 thus the context in which the performers were operating provides one possible explanation  
414 for these contrasting findings. Alternatively, the different personalities of the participants  
415 may have influenced the situational properties that were perceived to underpin the stressors  
416 experienced. Indeed, Lazarus [10] suggested that although appraisals are commonly based on  
417 subtle environmental cues, 'personality variables, such as goals, situational intentions, and

418 personal resources' (p. 81) are also influential in appraising.

419         Turning to the transactional alternatives experienced by the participants, in line with  
420 previous research [e.g. 2] some of the stressors (e.g. travel, relationship with the coach)  
421 reported in this study were associated with threat and harm/loss appraisals. However, this  
422 study extends previous research by suggesting that, while sport performers often appraise  
423 organizational stressors as a threat or with a sense of harm/loss, these stressors are also  
424 associated with challenge appraisals. While some of the stressors experienced were  
425 predominantly associated with one transactional alternative, the majority of the stressors (e.g.  
426 the coach and his coaching style, interaction with teammates, selection, diet and dehydration)  
427 were appraised in different ways. This finding highlights the complex nature of  
428 organizational stress transactions [cf. 4]. From a transactional stress perspective, a confluence  
429 of person (e.g. values) and situation (e.g. properties of stressors) factors results in  
430 individualised and convoluted appraisal processes [8]. Thus, the intricate nature of the  
431 transactional alternatives that were associated with organizational stressors in this study may  
432 be due to the environmental and personal factors that were present in each specific  
433 transaction.

434         With reference to the ways in which the participants coped, problem solving was the  
435 most commonly reported family of coping. This supports previous research that has  
436 highlighted problem solving as a commonly used strategy to manage organizational-related  
437 demands [3,11]. While the results suggest that problem solving was the most commonly used  
438 family of coping, it was associated with both performance satisfaction and dissatisfaction.  
439 This finding demonstrates that frequent use of problem solving was not necessarily helpful in  
440 managing the negative outcomes of stress. Thus, there may have been a misfit between the  
441 objective situation, the appraisal of the situation and the coping strategy employed [e.g. 14],  
442 which contributed to dissatisfaction with performance. The findings of this study extend

443 previous coping research [e.g. 32] by demonstrating the variety and complexity of coping  
444 strategies used both in isolation and in combination. Utilisation of Skinner et al.'s [12] more  
445 sensitive categorisation of coping allowed these coping complexities to be illuminated.

446 The findings of this study provide partial support for the choice of coping strategy  
447 model of coping effectiveness [15] because some ways of coping (e.g. escape) were, on  
448 average, perceived to be more effective than others. However, other ways of coping (e.g.  
449 problem solving) were not perceived to be inherently effective or ineffective. Thus, the  
450 results also suggest that the effectiveness of coping may depend on either the fit between the  
451 objective situation, the appraisal of the situation and coping [e.g. 14]; the automaticity of  
452 coping [17]; or the belief that an individual has in his or her ability to execute specific ways  
453 of coping [18]. Some of the current findings that relate to coping with organizational stressors  
454 are inconsistent with previous research. For example, while other researchers [e.g. 3] have  
455 suggested that support seeking is beneficial for coping with organizational stressors, our  
456 results suggest that support seeking is associated with both performance satisfaction and  
457 dissatisfaction. Thus, the current findings indicate that support-seeking is a 'double-edged  
458 sword' [cf. 33] and are in line with Beehr and McGrath [34] who proposed that support  
459 seeking can exacerbate stressful encounters by either failing to provide helpful resources or  
460 by creating conditions that facilitate feelings of stress.

461 The participants were most often dissatisfied with their performance when they  
462 encountered stressors relating to logistical and environmental issues. Specifically, selection  
463 was one of the stressors in this general dimension that was commonly associated with  
464 performance dissatisfaction. This stressor is likely to hold high importance for the athletes in  
465 this study because the outcome of selection can shape their short- and long-term hockey  
466 careers. Importance is a key component of primary appraisals [35] and high levels of task  
467 importance have been shown to be significantly related to high levels of anxiety [36]. Further,

468 it has been suggested that heightened anxiety leads to maladaptive coping, which can in turn  
469 lead to reduced performance [37]. Thus, the associations between the importance of the  
470 stressor experienced, anxiety intensity, coping and performance may explain why selection,  
471 for example, often led to dissatisfaction with performance. Consistent with sport psychology  
472 researchers who have used objective measures of performance [e.g. 38], the results of this  
473 study illustrate that challenge appraisals were consistently associated with performance  
474 satisfaction. Thus, subjective performance satisfaction appears to be a useful measurement  
475 when objective measures of performance are unobtainable [cf. 39].

476 In terms of the praxis of this study, three important implications are evident. First, the  
477 results suggest that some organizational stressors (e.g. relationship with the coach, team  
478 atmosphere and support, travel) were typically appraised as a threat or with a sense of  
479 harm/loss and that these transactional alternatives were most often associated with  
480 performance dissatisfaction. Thus, practitioners should aim to minimise the frequency of  
481 these stressors by developing optimal coach-athlete relationships, training environments and  
482 competition situations. Notwithstanding, since previous research has suggested that some  
483 organizational-related demands are an inevitable part of high-level sport performance [2,4],  
484 consultants should also develop sport performers' abilities to appraise stressors as a challenge  
485 by using techniques such as cognitive restructuring. Second, consultants and coaches should  
486 emphasise the link between challenge appraisals and performance satisfaction to develop  
487 athletes' understanding of the link between positive appraisals and subjective performance.  
488 Third, high PCE was not necessarily related to performance satisfaction and thus, further to  
489 focusing on the ways of coping that are effective in alleviating the negative outcomes of  
490 stress, practitioners should encourage performers to understand the ways of coping that are  
491 effective in contributing to performance satisfaction.

492 A notable strength of this study relates to the focus on transactional pathways, which,

493 as noted, has important applied implications. Another strength is the minimal time delay that  
494 occurred between performers' stressful experiences and their recall of those experiences. The  
495 aim here was to facilitate accurate and complete recall. Nonetheless, the findings should be  
496 considered in light of some potential limitations. For example, while the visual analytical  
497 diagrams used in this study provide the reader with useful information regarding transactional  
498 pathways between components of organizational stress transactions, the diagrams portray  
499 linear processes that simplify the transactional nature of stress. In addition, the performance  
500 satisfaction data should be interpreted with caution because of the limitations of retrospective  
501 recall, the influence of outcome-dependent recollection and the multiple other potential  
502 factors that can shape athletes' satisfaction with their performance.

503 This study has advanced understanding of potential transactional pathways between  
504 key components of the organizational stress process. The results support previous research  
505 that highlights appraising as the pivotal aspect of stress transactions [2]. Thus, research  
506 exploring appraisal-focused interventions is required if the aim is to better understand how to  
507 optimise appraisals and facilitate performance satisfaction. Secondary level stress  
508 management interventions that include cognitive-behavioural based techniques may represent  
509 one such research avenue. Researchers may consider using the cognitive-motivational-  
510 relational theory of emotions [10] as a theoretical framework to underpin future research on  
511 the dynamics of transactionalism. This would allow further differentiation within appraisal  
512 data (e.g. threat, challenge, harm, benefit) and would provide opportunities for emotions to be  
513 explored as an integral part of stress transactions. One further opportunity for future research  
514 relates to examinations of the bidirectional pathways between key components of  
515 organizational stress transactions.

## 516 **Conclusion**

517 This study is the first to illuminate potential transactional pathways between

518 organizational stressors and their underlying situational properties, appraisals, coping, PCE  
519 and subjective performance satisfaction. The findings emphasise the complex nature of  
520 performers' organizational stress transactions and add to the theoretical and practical  
521 knowledge bases by facilitating a more complete understanding of these transactions.  
522 Appraising appears to be the pivotal element in organizational stress transactions that seems  
523 to influence whether an athlete will be satisfied or dissatisfied with her performance. Indeed,  
524 performance satisfaction was most likely when the stressors were appraised as a challenge  
525 and therefore, practitioners should encourage athletes to make positive appraisals of the  
526 demands encountered. An advanced battery of stress management techniques and ways of  
527 coping is required to optimise athletes' appraisals and alleviate the negative outcomes of  
528 organizational stress.

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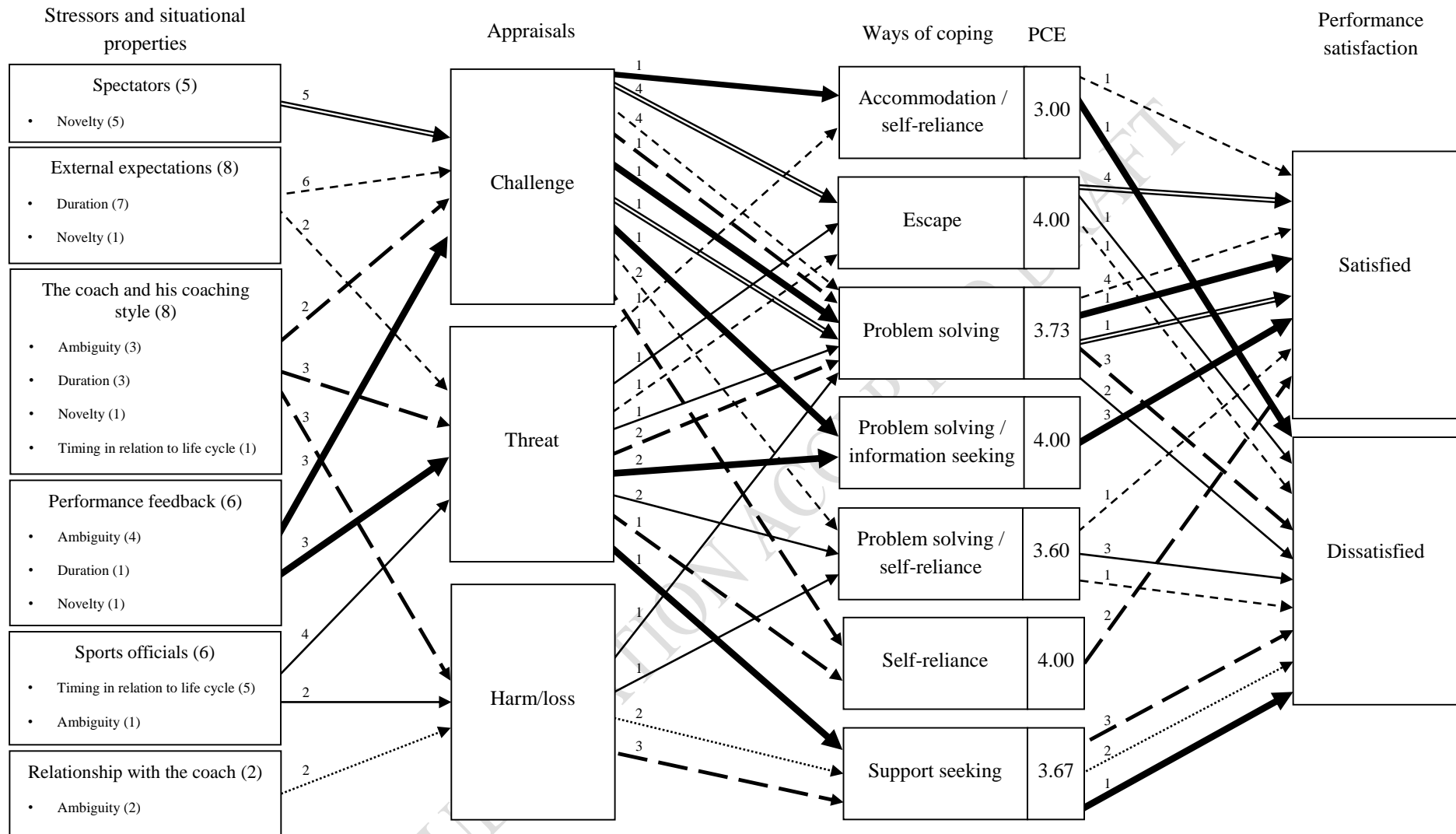
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**Figure 1.** Visual analytical diagram relating to leadership and personnel issues. Numbers above each line demonstrate the frequency analysis for each component of the stress transactions. The format of the arrows allows the transactional pathways between stressors, appraisals, ways of coping, and subjective performance satisfaction to be followed. The same frequency and formatting procedures have been applied to each figure within the manuscript. *Note.* PCE = perceived coping effectiveness.

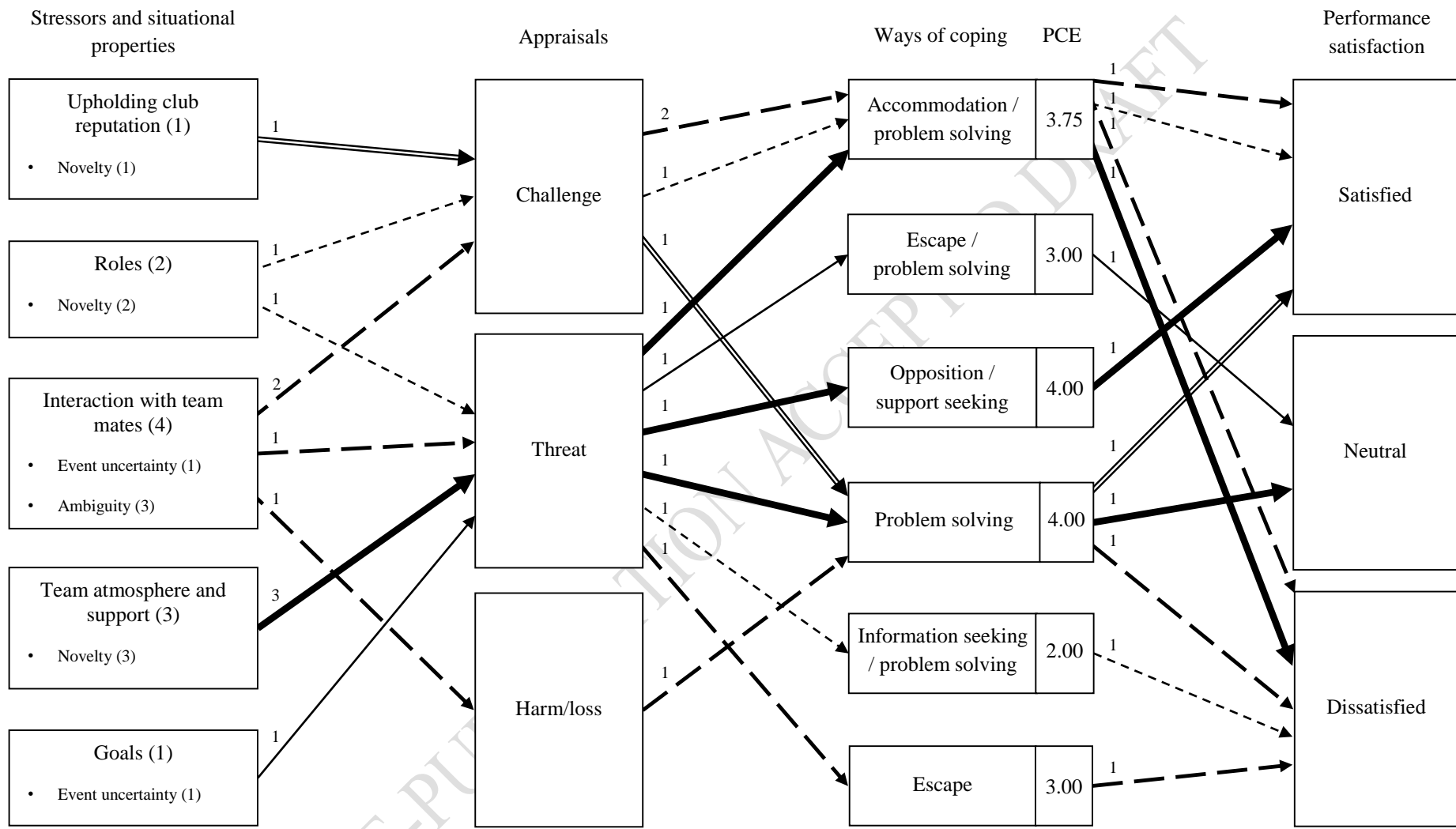
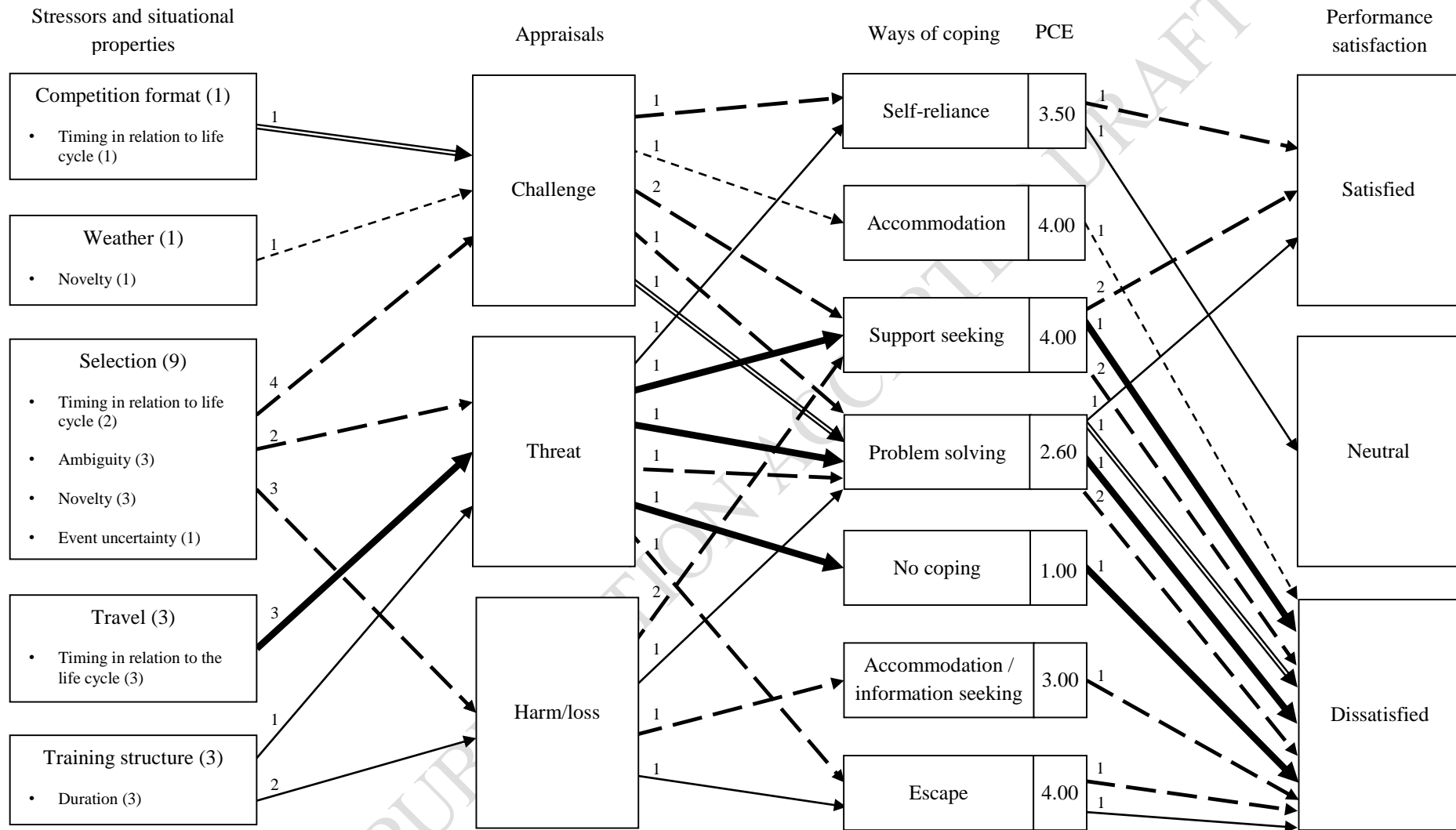
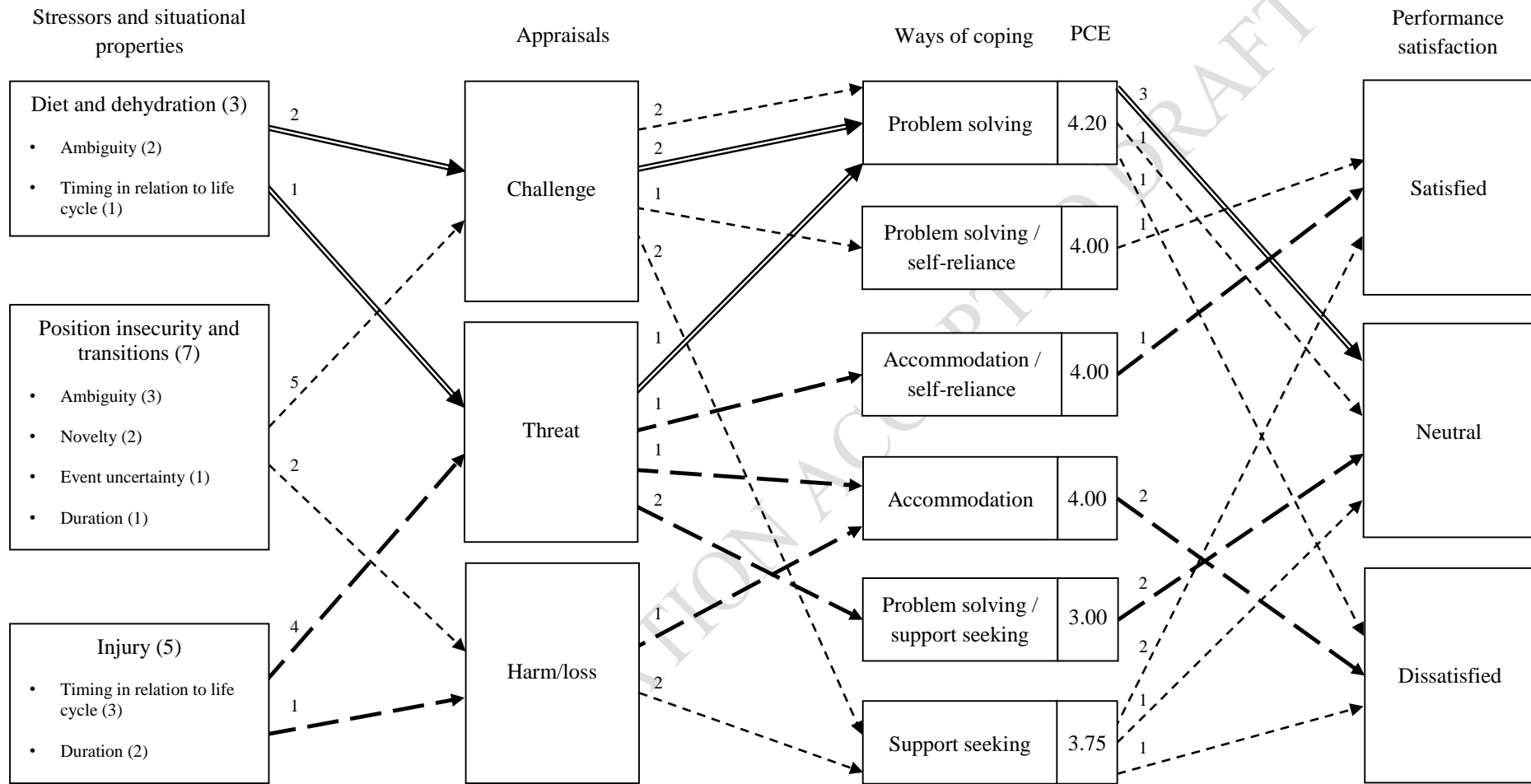


Figure 2. Visual analytical diagram relating to cultural and team issues.



**Figure 3.** Visual analytical diagram relating to logistical and environmental issues.



**Figure 4.** Visual analytical diagram relating to performance and personal issues.