

1 Running Head: STRESS EXPERIENCES IN YOUTH SPORT

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11 A Longitudinal Examination of Stressors, Appraisals, and Coping in Youth Swimming

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Abstract

29 **Purpose:** Involvement in sport has the potential to cause athletes, coaches, and parents to
30 experience stress. However, the extent to which experiences of stress are shared within the
31 athletic triad is unknown. The purpose of this study was to examine the individual and shared
32 stress experiences among youth swimmers, their mothers, and coach within the context of
33 training, tapering, and competition.

34 **Design:** Multi-case study design.

35 **Method:** Four female swimmers, their mother, and one coach completed daily diaries for six
36 weeks and up to three semi-structured interviews. Data were analyzed through within- and
37 cross-case thematic analysis.

38 **Results:** The study showed evidence of shared stress experiences between all three members of
39 the athletic triad. Participants predominately encountered organizational stressors, which they
40 appraised in relation to movements between squad, interpersonal relationships, and overall
41 progress towards performance goals/outcomes. Numerous coping strategies were employed by
42 participants, with varying degrees of effectiveness, such as seeking social support, distancing,
43 and lift sharing. The coping strategies used by coaches, swimmers, and parents were often
44 interrelated with participants frequently seeking emotional support from one another. The
45 majority of stressors and appraisals cited by parents and swimmers were shared, with both
46 heavily relying on social support to help each other cope with the stressors encountered.

47 **Conclusion:** Athletes, parents, and coaches have the capacity to influence one another's stress
48 experiences and as such their experiences should be considered simultaneously to maximize
49 the impact of interventions.

50

51 **Key Words:** Youth Sport, Swimming, Athletic Triad, Stress, Case-study

52 Involvement in youth sport has been associated with a number of stressors among
53 athlete, parent, and coach populations (Frey, 2007; Harwood & Knight, 2009a; Nicholls,
54 Hemmings, & Clough, 2010). If individuals are unable to effectively cope with these stressors,
55 it can result in negative outcomes both individually and in terms of the relationships that exist
56 within the athlete triad (athletes, parents, and coaches; Fredricks & Eccles, 2004; Tamminen &
57 Holt, 2010). Given such consequences, substantial attention has been given to examining stress
58 experiences in sport (see Nicholls, 2016, for review¹).

59 Contemporary approaches to understanding stress and coping experiences utilize a
60 transactional approach (Lazarus & Folkman, 1984; Lazarus, 1999). Here stress is viewed as a
61 process of an ongoing transaction between an individual and their environment, mediated by
62 that person's cognitive appraisal of the environmental demand or stressor they encounter. The
63 term stressor is used to denote "environmental demands encountered by individuals" (Fletcher,
64 Hanton, & Mellalieu et al., 2006, p. 329). Lazarus and Folkman postulated that strain arises
65 from a perceived imbalance between environmental demands (stressors) and an individual's
66 coping resources.

67 According to Lazarus (1999) there are two types of appraisals: primary and secondary.
68 Primary appraisal is concerned with how an individual evaluates the personal significance of
69 the situation in relation to his or her own beliefs, values, and goals. Secondary appraisal is an
70 individual's cognitive evaluative process that focuses on what can be done to manage the
71 stressful situation and whether the individual feels they possess the ability to cope (Lazarus,
72 1999). Having appraised the demand, the extent to which individuals may experience strain is
73 dependent upon their implementation of effective coping strategies (Lazarus, 1999). When a
74 person appraises a given encounter they may employ specific coping strategies to deal with the

¹A full synthesis of this literature is beyond the scope of this manuscript. Readers are referred to Crocker, Tamminen and Gaudreau (2015); Nicholls, Taylor, Carroll and Perry (2016) and Fletcher and Arnold (2016) for some of the latest reviews in the area.

75 demand or stressor encountered. The implementation of such coping strategies can vary in
76 effectiveness (Nicholls, Holt, & Polman, 2005). Thus, to assess the stress process in sport
77 awareness of stressors, appraisals, coping, and coping effectiveness is necessary.

78 In applying the transactional model within the sporting context, a plethora of research
79 examining stressors and coping in athletes (often, but not exclusively, adult athletes), coaches,
80 and increasingly parents has emerged (e.g., Frey, 2007; Hanton, Fletcher, & Coughlan, 2005;
81 Harwood & Knight, 2009a; Mellalieu, Neil, Hanton, & Fletcher, 2009; Thelwell, Weston,
82 Greenlees, & Hutchings, 2008). Some research has focused on examining changes in stressors
83 and coping over very short time periods, for example during a single competition (Gadreau,
84 Blondin, & Lapierre 2002), while other research has been prospective and longitudinal in
85 nature (Levy, Nicholls, Marchant, & Polman, 2009; Nicholls, Levy, Grice, & Polman, 2009;
86 Nicholls, Jones, Polman, & Borkoles, 2009; Thelwell et al., 2008). In line with the
87 transactional model the key findings in the literature suggest that stressors fluctuate over time
88 and differ depending upon whether demands are encountered in training or competition.
89 Linked to this, there is substantial evidence that athletes and coaches experience stressors from
90 competitive, organizational and personal sources (Thelwell et al., 2008; Woodman & Hardy,
91 2001) and for parents, competitive, organizational, and developmental sources (Harwood &
92 Knight, 2009a, 2009b).

93 With regards to coping strategies, research indicates that coping is dynamic in nature
94 and athletes employ multiple coping strategies to manage a single stressor at any given time
95 point (Nicholls & Polman, 2007; Nicholls, Levy, et al., 2009; Tamminen & Holt, 2010a).
96 Athletes appear to utilize problem-focused coping strategies when stressors are perceived as
97 controllable, whereas stressors with low levels of perceived control are associated with
98 emotion-focused strategies (Nicholls & Polman, 2007). Moreover, it appears that athletes
99 employ different coping strategies on training days compared to competition day and that

100 coping effectiveness may be higher on competition days (Nicholls, Jones, et al., 2009;
101 Nicholls, Levy, et al., 2009). Olusoga and colleagues (2010) similarly reported that coaches
102 employed a variety of coping strategies, often simultaneously, to manage the demands
103 encountered in the world-class sporting context. The coaches' predominately used problem-
104 focused strategies such as structuring and planning, and time management, as well as engaging
105 in professional development opportunities. Burgess, Knight and Harwood (2016) meanwhile
106 identified that reappraisal, problem-, and emotion-focused coping strategies were required for
107 parents to manage the demands they encounter in youth sport.

108 Fewer studies have been conducted examining the specific appraisals reported, in
109 comparison to that of stressors encountered or coping deployed (Nicholls, Perry, & Calmeiro,
110 2014). Those studies that have examined appraisals (e.g., Hanton, Wagstaff, & Fletcher, 2012;
111 Nicholls et al., 2010; Tamminen & Holt, 2010a) have typically focused upon athletes. Findings
112 have indicated that: contextual factors likely influence stressor appraisals (e.g., Tamminen &
113 Holt, 2010b); appraisals are often in the form of harm or threat (Hanton et al., 2012); appraisals
114 are dynamic and change over time (e.g., Nicholls et al., 2005; Tamminen & Holt, 2010a).
115 Given such findings, expanding our understanding of stressor appraisals across athletes,
116 coaches, and parents is warranted in order to enhance the effectiveness of subsequent stress
117 intervention programs delivered with these populations.

118 Despite the continued commitment to research in this area, there are numerous aspects
119 that warrant further examination. Although there are some notable exceptions (e.g., Nicholls,
120 Hemmings, & Clough, 2010; Tamminen & Holt, 2010a, 2012), research examining the overall
121 stress process has generally focused upon adult rather than youth athletes. Given that children
122 and adolescents often have more limited coping abilities than adults (Fletcher et al., 2006;
123 Tamminen & Holt, 2012), and as such might be at greater risk of experiencing strain, ensuring

124 a thorough understanding of their experiences of stress is necessary to enhance the
125 effectiveness of interventions with this population.

126 Further, although a large body of literature exists examining athletes', coaches', and
127 increasingly parents' experiences of stress in sport, these studies have generally considered
128 individuals in isolation or dyads (see for e.g., Hanton et al., 2005; Harwood & Knight, 2009a;
129 Olusoga, Butt, Maynard, & Hays, 2010) resulting in limited attention being given to how the
130 stress experiences of individuals across the athletic triad are related (Burgess, Knight, &
131 Mellalieu, 2016). This lack of research is surprising considering that parents, coaches, and
132 athletes have a substantial capacity to influence one another's behaviors and experiences
133 (Dorsch, Smith, & McDonough, 2009; Tamminen & Holt, 2010b) and spend considerable time
134 interacting during childhood and adolescence (Harwood & Knight, 2016).

135 Parents have been shown not only to be a source of strain for children (Reeves,
136 Nicholls, & McKenna, 2009) but also influence children's coping strategies (Lafferty &
137 Dorrell, 2006; Tamminen & Holt, 2012). Indeed, given young athletes' limited coping
138 capabilities, they are typically reliant on social support from parents and coaches (Fletcher et
139 al., 2006). Similarly, children can influence their parents' behaviors through their responses
140 and requirements (Dorsch et al., 2009), and their performances and behaviors during
141 competitions themselves can be a source of stress for parents (Harwood & Knight, 2009a,
142 2009b). Parents and coaches also influence each other within youth sport contexts (Knight &
143 Gould, 2016). For instance, it is not uncommon for coaches to frequently interact with parents,
144 and, in turn, for parents to be a large source of strain for coaches (Knight & Harwood, 2009).
145 According to Knight and Harwood (2009), tennis coaches cited a variety of parental behaviors
146 as stressors. The prominent stressors were categorized into stressors related directly to coach-
147 parent contact and indirectly via parent-child interactions. Similarly, coach-parent interactions
148 can cause parents strain (Harwood & Knight, 2009a, 2009b) and coaches have the potential to

149 influence athletes' stress experiences, both by acting as a stressor for athletes and by
150 influencing their coping capacity (e.g., Nicolas, Gadreau, & Franche, 2011).

151 Taken together, the literature gives a clear indication that members of the athletic triad
152 can all influence each other's stress experiences. However, the exact ways in which one
153 parties' stressors, appraisals, or coping strategies are experienced by, and potentially influence
154 the stress experience of others, is unknown. Given that parents and coaches both play a large
155 role in the lives of adolescent athletes (Côté, 1999) there is a particular need to examine the
156 complex interactions within the athletic triad during this time (Burgess et al., 2016). To this
157 end, the purpose of this study was to explore the individual and shared stress experiences of
158 adolescent swimmers, their parents, and their coach across three phases of swimming (training,
159 tapering, and competition). The study sought to answer four key research questions: 1) What
160 demands do youth swimmers, their parents, and their coach face during training, tapering, and
161 competition, and how are these shared within the triad? 2) How do youth swimmers, parents,
162 and coaches appraise these demands? 3) How do youth swimmers, parents, and coaches' cope
163 with these demands? And, 4) How effective are the coping strategies swimmers, parents, and
164 coaches use?

165 Method

166 Methodological and philosophical underpinning

167 A case study methodology was adopted for this study. This approach was considered
168 the most appropriate methodology because a case study allows for a holistic, in-depth
169 exploration of events or experiences of individuals over time (Yin, 2003), which aligned with
170 the longitudinal, idiographic aim of this study. The case study approach allows for interactions
171 and causal links within and between cases to be examined (Yin, 2003). Thus, a case study
172 methodology was deemed particularly pertinent because it enabled the stress process to be
173 explored among individuals, as well as across cases or 'triads' (i.e., parents, athletes, and

174 coaches) to indicate interactions and shared stress experiences. In conducting this case study,
175 we were particularly interested in understanding the individual and shared experiences of each
176 participant within the complex human world, while recognizing that through our interactions
177 with the participants we would be co-creating knowledge. As such, this project was founded in
178 an interpretive paradigm, which influenced our data collection and analysis procedures, as well
179 as the steps to enhance methodological rigor.

180 **Participants**

181 Four cases were selected for this study, which aligns with studies of a similar nature
182 (e.g., Nicholls et al., 2009) and was deemed appropriate to gain a detailed understanding of the
183 phenomena. Each case included one female swimmer, one mother, and one female coach. Only
184 female swimmers were selected as limited research attention has been given to female
185 populations (e.g., Tamminen & Holt, 2010a), despite evidence suggesting gender can influence
186 athletes' appraisals and coping strategy usage (cf. Ptacek, Smith, & Zanes, 1992), as well as
187 perceptions of parental involvement (e.g., Knight, Berrow, & Harwood, in press). Mothers
188 were selected because: 1) The mothers indicated that they took on the majority of roles and
189 responsibilities with regards to their daughter's swimming training and competition, and 2)
190 Mothers are particularly influential in the sporting lives of their daughters.

191 The same coach was included in each of the cases. She had 19 years of experience
192 coaching, working with swimmers ranging from regional to international standard. The
193 swimmers were all 14-15 years old ($M=14.2$ years) and regularly engaged in national and/or
194 international competition for approximately 5-6 years. Selection of participants was designed
195 to align with the specializing stage of swimming, which is when adolescent athletes are highly
196 involved in the sport and parents and coaches are both critical (Côté, 1999). The mean age of
197 the mothers was 45.25 years ($SD= 3.86$ years) with between six and 13 years of experience of
198 parenting children in swimming.

199 **Procedure**

200 Following the receipt of University Ethics Board approval, the lead researcher
201 contacted coaches at local swimming clubs in the UK to enquire into the possibility of
202 conducting research with the swimmers, coaches, and parents at the club. A meeting with the
203 swimmers and parents was arranged via the coaches. At this meeting information sheets and
204 informed consent and assent forms were distributed and anyone interested in participating was
205 asked to contact the research team via email to arrange their involvement.

206 **Data collection.** The current study was longitudinal in nature, with data collection
207 taking place over a 6-week period leading up to a major competition to provide an opportunity
208 to examine the dynamic and temporal stress process (Nicholls et al., 2005). In line with
209 previous longitudinal studies of stress, appraisals, and coping (e.g., Nicholls et al., 2005, 2006)
210 data collection occurred through daily diaries and interviews. Daily diaries were selected
211 because they are useful in capturing information as it occurred and reduces risk of participant
212 forgetfulness (cf. Nicholls et al., 2005), while interviews were selected to provide opportunities
213 to obtain in-depth, detailed information pertaining to participants' experiences at different
214 phases of the study (Smith & Sparkes, 2016). Three pilot interviews and a pilot of the diaries
215 were conducted before the study commenced. Pilot work was completed to ensure the format
216 of the diaries was comprehensible and interview questions were appropriate. Once informed
217 consent and assent was obtained for all participants, data collection commenced via daily diary
218 entries and individual semi-structured interviews.

219 *Daily diaries.* Based on previous studies using diaries (e.g., Nicholls et al., 2005, 2006),
220 participants were given an information package containing diary sheets for a week, along with
221 instructions, a completed diary example, and a definition of stress and coping. Participants
222 were provided with a new pack at the start of every week for the 6-week duration of the study
223 (See Appendix A). Participants were asked to complete the diaries on a daily basis as soon as

224 possible after each swimming session. The lead researcher collected diary packs at the start of
225 each week and distributed new packs for the next week.

226 *Semi-structured interviews.* All participants completed three interviews (except one
227 mother who only completed two interviews); one in the training phase, one in the tapering
228 phase, and one in the competition phase. All interviews took place in a semi-private location at
229 the participants' swimming pool and were audio-recorded. The purpose of these interviews was
230 to supplement the information obtained from diary entries and allow participants to explain
231 their experiences in more detail. The interview guides were constructed based on previous
232 studies in this area (e.g., Nicholls et al., 2009). On average the interviews lasted 56.50 min
233 (SD=20.30 min) during the training phase, 31.32 min (SD=12.45 min) during tapering, and
234 25.03 min (SD=10.54 min) during the competition itself (see Appendix B).

235 **Data analysis.** An idiographic approach was used to examine each case (triad) before
236 cross-case analysis was conducted. Interview data were transcribed verbatim and participants
237 were allocated pseudonyms. The interview and diary data for each participant in each triad
238 were analyzed using the qualitative data analysis procedures recommended by Miles and
239 Huberman (1994). Data reduction took place through three stages of coding. Initially,
240 descriptive codes were allocated to the data to identify the raw data themes. Next interpretive
241 codes were generated which grouped descriptive codes into abstract concepts. Finally, pattern
242 codes were identified which illustrated the relationships between the interpretive codes.

243 Once data reduction had occurred, case ordered data matrices were created to allow for
244 a systematic review of the data within and between triads. The approach to case study analysis
245 followed the procedures proposed by Yin (2003). A multiple case analysis was conducted by
246 firstly providing a detailed description of each case (through the process of coding and
247 reviewing the codes from each triad). Second, within case analysis of the separate components
248 within the stress process was performed. This data was then grouped to form a chronological

249 order of events. This method was considered necessary for exploring the temporal nature of
250 events, critical for understanding participant's experiences.

251 **Methodological rigor**

252 In line with suggestions from Sparkes and Smith (2009), the evaluation of the
253 methodological rigor of this study is proposed against the aims of a case study. Throughout this
254 study, we were guided by Cresswell's (2007) criteria for evaluating a good case study and a
255 number of steps were taken to fulfill these. The research team spent considerable time selecting
256 the cases and ensuring that appropriate individuals were participating in the study based on the
257 research aims. Data collection occurred over an extended period of time, using multiple
258 methods, to ensure a thorough understanding of the cases. Pilot interviews were also conducted
259 prior to data collection, which allowed the lead researcher to check the coherency of the
260 interview questions and ensure the questions would fully address the purpose of the study and
261 provide a detailed understanding of the cases that are then explored in the results section. The
262 depth of description and understanding of the cases was also facilitated by the same
263 interviewer (lead researcher) conducting all interviews, ensuring consistency in the delivery of
264 interview questions. The lead researcher conducting the research had previous competitive
265 swimming experience, which helped in establishing rapport with study participants. Such
266 rapport was important to increase the potential for participants to share information and
267 provide open responses to the research questions.

268 Within and cross-case analysis were conducted by the lead researcher, but data was also
269 subjected to a prolonged and rigorous peer review whereby the lead researcher engaged in
270 extended discussions with a research colleague during the data analysis process. Through this
271 process, the development of themes was facilitated and ensured that the experiences of all
272 individuals were accounted for. Additionally, throughout this process the lead researcher
273 maintained a reflexive journal in which she recalled not only her immediate responses to

274 interviews but also her emerging ideas. This journal was also used to bracket the researcher's
275 own ideas pertaining to both swimming and the transactional theory of stress. Such bracketing
276 was important because the lead researcher was also fully immersed in the swimming training
277 and competition environment, which helped to boost contextual understanding of the
278 participants' experiences but also influenced her interpretations of the data.

279 **Results**

280 **Within-case overview of stressors, appraisals, and coping strategies**

281 The participants recounted numerous stressors, appraisals, and coping strategies
282 throughout the training, tapering, and competition phases. An overview of the stressors,
283 appraisals, and coping strategies are provided in Table 1. Tables 2, 3, and 4 respectively
284 illustrate the shared stressors, appraisals, and coping strategies for each case across the three
285 phases of training, tapering, and competition. Further explanations of these ideas are presented
286 in the cross-case analysis of the stress experiences.

287 *****Table 1*****

288 **Stressors.** Participants recalled organizational, competitive, and personal stressors. The
289 majority of stressors were related to organizational demands, particularly during training and
290 tapering. During competition more competitive stressors were recalled but organizational
291 stressors were still present. Overall, more stressors were recalled during training, with fewer
292 stressors recalled during the competition phase.

293 **Appraisals.** Stressors were often appraised in relation to the potential consequences on
294 swimmers' performance, relationships and comparisons to other swimmers, and potential
295 negative reactions of others. Appraisals were more varied during training and tapering phases
296 than during the competition phase. During competition, parents and swimmers often appraised
297 stressors similarly, while the coach's appraisals were more limited at this time. Appraisals

298 related to within-squad rivalry, child's reaction, and race outcome were recalled across all data
299 collection phases and by at least two participant groups.

300 **Coping strategies.** Participants utilized problem, emotion, and avoidant-focused
301 strategies in their attempts to manage their stressors and recalled these as varying in
302 effectiveness. All participants used emotion-focused strategies, particularly during the training
303 and tapering phase. Similarly, all participants employed problem-focused strategies, although a
304 greater variety were implemented by parents than swimmers or coaches. In contrast, swimmers
305 were more likely to utilize avoidant coping strategies.

306 *****Table 2*****

307 *****Table 3*****

308 *****Table 4*****

309 **Cross-case Examination of Stress Experiences**

310 In conducting the individual and cross-case analysis of the data, it was apparent that
311 there were many similarities in the experiences across the cases. In the following sections, the
312 stressors and appraisals recalled across all triad members are explored, with a particular focus
313 upon the interpersonal influences in the stressors and appraisal. It is important to note that,
314 although the stressors below are described as individual themes, there was substantial
315 integration between the ideas.

316 **Factors Influencing Training Progress and Performance.** Through the training and
317 tapering phase, parents, swimmers, and the coach all described a number of stressors and
318 appraisals associated with swimmers' engagement and training progress and performance.
319 Particularly, stressors associated with session attendance and punctuality, logistics and travel
320 demands, injury and illness, academia, and other swimmer behavior were consistently
321 identified across the cases.

322 *Session attendance and punctuality.* This theme refers to swimmers missing training
323 sessions, being late to sessions or leaving sessions early and was recalled by two swimmers, all
324 the mothers, and the coach. In describing this stressor, it became apparent that the participants'
325 experiences of this were largely influenced by perceptions and expectations of others. For
326 instance, the coach found it particularly demanding when swimmers did not attend the morning
327 session after the non-tapered meet, as she explained, "we try and teach the swimmers that that
328 the day after competition is equally important ... they need to do it so I then find it frustrating
329 when only four turn up." However, Jenny (the coach) acknowledged that swimmers were not
330 entirely to blame for non-attendance, as she explained, "it's possibly the parent who spent all
331 weekend at [name of meet] sat there and doesn't want to take their child 'cause they're tired or
332 they think maybe their child's tired."

333 This stressor was shared with two swimmers and all mothers. For instance, Amy shared
334 the following stressor in one interview, "You've got to do at least 30,000km a week and by
335 missing that [session] I would have missed quite a few sessions", while her mother stated, "she
336 [Amy] didn't want to go training on the Friday night 'cause she wanted to do her homework
337 but I said 'you're gonna have to go 'cause sessions have been missed.'" Other examples from
338 the mothers included Hazel writing, "my daughter wasn't keen to go tonight, doesn't like set
339 on Sundays" and Katherine listing, "late for land training again" as stressors.

340 In addition to this stressor being shared within and across the triads, the appraisals of
341 this stressor also appeared to be related. For example, the coach explained that she appraised
342 this stressor in relation to swimmers' performance expectations for upcoming meets. As Jenny
343 explained, she thought, "well they [swimmers] turn to me and ask why they haven't swum as
344 well as they wanted to at the [competition]. I have it on my register that when they were and
345 weren't there." Additionally, Jenny indicated that she became concerned her swimmers would
346 not progress, resulting in frustration. As she explained, "water time is so precious, so to be late

347 getting into the water, that frustrates me, and when they take forever putting their hats on and
348 dawdling!”

349 Given Jenny’s frustration, it is perhaps unsurprising that swimmers appraised this
350 stressor against potential coach reactions. As Amy said, “I was worried she [my coach] would
351 shout at me because I got out early,” and Sian explained, “I was quite worried just in case she
352 [Jenny] thought I was purposefully missing it [swimming session].” This appraisal of coach
353 reaction was also shared by mothers, as Hazel explained, “I didn’t want her to get in a row
354 either over something that wasn’t her fault you know but she’s [coach] usually pretty good.”
355 Consequently, the mothers also indicated appraising this stressor in relation to their child’s
356 own reaction, as one mother said, “my daughter gets tense ... she really gets on the defensive
357 ... she’ll get in the car and start shouting at me ‘oh god come on were gonna be late again.’”

358 Coping strategies were also intertwined between the participants. For instance, the
359 coach attempted to cope with this demand by speaking to swimmers that were consistently
360 arriving late to sessions. Jenny said, “sometimes you actually need to say ‘well is there a
361 reason behind this, is there a reason why you are constantly turning up late, what is going on?’
362 and you can sometimes find out a little bit more.” Jenny rated this strategy as effective (4/5).
363 The swimmers, meanwhile, turned to their mothers to cope. For example, Amy explained, “I
364 spoke to my mum about it and worked out what to do to catch up on my mileage.” Amy
365 perceived this coping strategy to be effective (4/5). Susan also found talking to her daughter
366 (Amy) helped her to cope with this stressor, as she said, “[I] informed my child [Amy] on what
367 they will say if coach asks why the session was not attended.” Susan rated this as an effective
368 (5/5) strategy because it prevented her worrying about her daughter.

369 However, Amy and Sian, and their mothers, also used avoidance coping strategies when they
370 missed sessions. For instance, a few mothers mentioned that when their children were late it
371 was “easier not to speak to her [the daughter].”

372 *Logistical and Travel Demands.* Tied to the previous theme, all mothers recalled
373 stressors associated with logistical and travel demands. For example, one mother (Susan)
374 simply said, “I get stressed purely with the lifts and running around... I always feel stressed on
375 Tuesday as time is very limited from work to pick-up and drop off again,” while another
376 (Hazel) explained, “I felt stressed having to get both children to their activities at the same
377 time,” and Janet frequently wrote in her diary that a demand was, “Rushing to get to training
378 on time.” The primary appraisals for this stressor were varied, but for all mothers there was a
379 link made to session attendance and punctuality. For instance, Katherine (Alice’s mother)
380 wrote a stressor was the fact she had to “rush again and was almost late for training,” and then
381 went on to explain that she appraised this stressor as threatening because she was worried
382 about the coach’s reaction and her daughter’s reaction [to her coach] if they were late for
383 training. Katherine said, “I was still worried something would be said to Alice about her being
384 late and [I] didn’t want her to get upset.” Additionally, appraisals of this stressor were
385 associated with the potential impact upon parents’ work schedule, as Hazel explained, “I was
386 really stressed after work and worried she would be late for training.”

387 The mothers used both problem- and emotion-focused strategies in their attempts to cope
388 with this stressor. For instance, all of the parents shared lifts with other parents or among
389 family members to enable them to appropriately transport their children to training. Susan said,
390 “I had to ask a friend if they could pick up from swimming as I was at another pool with other
391 child.” Generally, parents rated this strategy as moderately (3/5) or very (5/5) effective.
392 However, this could become an additional stressor for parents if they felt guilty depending
393 upon others to help, as Hazel said, “I didn’t like the fact I had to rely on him [Hazel’s dad]
394 because I didn’t have a car and it was really difficult.” Additionally parents used time
395 management strategies (e.g., packing bags, preparing food in advance) and emotion-focused
396 strategies, such as Susan indicating, “I tried to calm myself down by taking deep breaths.”

397 *Injury and Illness.* Injury or illness was recalled by all swimmers and this stressor was
398 also shared by each of their mothers. For example, one mother (Susan) simply listed as a
399 stressor, “My child [Amy] has been complaining of a sore shoulder” during the tapering phase.
400 Amy similarly stated, “everyone else is getting on with it [training] and I couldn’t really do
401 much because my shoulder was hurting.” Across the cases, the stressor of injury and illness
402 appeared to be exacerbated by a perceived lack of support or information from the coach.
403 Susan explained, “It does frustrate me a bit because... I do think there should be numbers
404 given to you straight away... I’d text and then I hear nothing back.”

405 For Hazel it was actually her own illness that she found demanding during the tapering
406 phase. As she wrote in her diary, she was, “stressed, frustrated and unable to drive daughter to
407 training.” Hazel perceived that she was relying on social support (her coping strategy) too
408 much, which she described in her diary as, “ineffective - me not driving caused a lot of stress
409 on the family as they are busy with activities and extra stress on my husband. Feel like I’m
410 letting him down.” Hazel summarized this stressor stating, “I haven’t been able to drive... my
411 husband’s been bringing her.... I didn’t take her... I was gutted.”

412 Similar appraisals were made by swimmers and parents in relation to injury and illness.
413 Particularly, appraisals were made in relation to training progress and performance
414 expectations. For instance, Susan said, “she’d [Amy] missed four sessions, which isn’t a huge
415 amount but I know they were doing sprint sets... but you do worry because I thought, you
416 know, she’s coming up to the [major competition] and I was hoping she’d be in a good place
417 for it.” The swimmers additionally expressed appraisals regarding their progress relative to
418 others. For instance, Amy said, “[I’m] just worried when I go back that all the others will be
419 ahead of me and I wouldn’t be able to do the same times as I was doing the week before.”

420 The participants reported using numerous coping strategies, with varying effectiveness.
421 For instance, Amy used positive reframing to cope with this stressor as she explained, “Better

422 to be ill now than just before the [National competition].” Amy also used emotion-focused
423 coping, seeking social support, for example speaking to her mum and coach, as well as
424 problem-focused by adapting her training sessions. The coping effectiveness of ‘telling coach’,
425 initially was perceived as ineffective (2/5) as Amy did not think the coach cared. Amy
426 explained it was “not that effective because nothing was done about it so I felt upset.”
427 Similarly, Alice wrote that one coping strategy she used was, “I told my coach so she knew
428 why I was swimming bad.” However, again, this was not perceived as effective (1/5) because
429 Alice was still in pain and telling her coach did not eliminate the problem.

430 For mothers however, the coping strategies appeared less effective, for instance, Susan
431 (Amy’s mother) cited that she did not have many coping strategies and could not cope very
432 well with Amy’s injury because she thought the stressor was out of her control, as she said, “I
433 can’t do anything... just gotta sit back and let it all go over my head.” While Hazel evaluated
434 her strategies to cope with her own illness as ineffective. As she explained, “no I don’t think I
435 coped very well. no I was shouting at [husband]... I was absolutely horrendous.”

436 *Swimmer behavior.* During training, and particularly the tapering phase, participants
437 indicated a range of issues associated with the behavior of other swimmers during sessions. In
438 fact, swimmers and their mothers recalled the stressor of swimmer behavior across all cases.
439 For instance, Amy explained, “it was like really annoying... they [new swimmers] weren’t
440 listening they were just pushing off and sprinting it all.” Similarly, Alice said a stressor during
441 training was, “people going off the wrong times” and, “having to swim with the older squad,
442 and nobody wanted to talk to me, not even the people near my age.” This was reiterated by her
443 mother (Katherine) who stated a stressor was, “some of the newer members of the squad were
444 racing the set and not listening to the coach.”

445 Swimmers and mothers’ primary appraisals for this stressor were associated with
446 training progress and coach reaction. Amy explained, “I couldn’t swim properly and they

447 [other swimmers] were getting in the way... [I was] just worried that I was gonna miss the
448 times and the coach thought I was swimming slow cause I was like missing the times.” From a
449 mother’s perspective, Katherine explained that other swimmers hampering her daughter’s
450 progress was concerning. She explained, “I was getting more and more worked up about it
451 because they [other swimmers] were stopping her and she was just hanging back because they
452 wouldn’t let her overtake.” Katherine indicated that she did not cope very well with this
453 stressor (1/5), writing, “I carried on watching and let the frustration build.” Katherine did
454 reappraise this stressor and said, “well I mean I did sort of think they’re new to the squad
455 they’re trying to impress the coach... I can understand why they were doing it ...”

456 Sian and her mother (Hazel) also shared a stressor regarding swimmer behavior,
457 specifically Sian being bullied and distracted. As Sian explained during tapering, “a girl I’ve
458 been having problems with turned up to a training session and was trying to race me.” Her
459 mother also explained, “I know she’s had a problem with that girl again... she was swimming
460 on everybody’s feet again... and she tried it Monday night again... it’s just I’ve had enough of
461 it.” For Sian and Hazel, the primary appraisals of this stressor were associated with training
462 progress. Sian said she felt, “annoyed and upset at the time because I knew she was doing it to
463 get to me purposefully no one else, she wanted to distract me.” Hazel additionally expressed
464 concerns about her child’s emotional wellbeing. Hazel did not perceive that she coped with this
465 stressor (0/5), but she did attempt to ignore it by “letting it [other swimmers behavior] go over
466 my head ‘cause I know if I approach them is gonna get nasty.”

467 *Academia*. Lastly, academia, and its balance with swimming, was another stressor
468 regularly cited by swimmers and mothers during the training and tapering phase. Particularly,
469 participants raised concerns pertaining to fitting in schoolwork and exam revision. For
470 instance, Sian wrote, “I have a lot of pressure from my schoolwork,” and Amy listed stressors
471 such as, “I have a Science test, no time to revise” and, “I know I’m not gonna be an Olympian

472 ... so I wanna like focus on that [school] but like if I miss training I gotta like get in the miles”
473 in her diary. Mothers expressed similar concerns, as Hazel explained, “I am worried about her
474 as she seems under so much pressure with school and nationals are coming up.”

475 Swimmers and mothers’ described many appraisals associated with academia. For the
476 mothers, the primary appraisal was associated with their daughter’s health. As Hazel stated,
477 “She [Sian] said, ‘I wanna get into the distance squad’ but she’s got her GCSE’s coming up
478 and she’s under a lot of pressure... we are worried somewhere along the line something’s gotta
479 give.” In contrast, swimmers mostly appraised academia relative to maintaining a good
480 academic standard. As Amy explained, “because I’m in the top set I want to stay there... if I
481 don’t do well there’s a chance I could be moved down.” On one occasion Amy did reappraise
482 the stressor of academia as less threatening and that training may be beneficial. Amy wrote in
483 her diary, “the test was easy so there was no need to worry about it, sometimes it’s good to
484 swim to get revision off your mind.” Kate, meanwhile, appraised the stressor relative to her
485 coach’s reaction, explaining, “I would rather get out like say half an hour earlier [to revise] but
486 I don’t think the coach likes that so I kinda gotta cope with trying not to revise.” While Sian,
487 on similar lines, appraised academia in relation to the potential impact on training progress, as
488 she explained, “I was quite worried because I had morning training as well the next day... I
489 thought I needed to do as much as I can and then not go to bed too late before morning training
490 otherwise I’ll be like really slow.”

491 Swimmers and mothers attempted to utilize a range of strategies to manage the stressor
492 of academic. Problem-focused strategies were generally associated with time management. For
493 instance, Sian said, “I try and do it [homework/revision] in between [races] and I like do some
494 in the car if it’s revision I revise in the car before like training it helps me gives more time.”
495 Hazel supported Sian with these strategies, which subsequently eased her own anxiety and

496 worry. Hazel also sought social support by talking to her child to calm her down and help her
497 with homework. These strategies were perceived to be effective (4/5).

498 **Training Performance.** During the training and tapering phase, Jenny (the coach),
499 swimmers, and one mother cited stressors regarding training performance. Jenny simply wrote
500 a stressor is “swimmers struggled with main set.” The primary appraisal for this was associated
501 with swimmer reaction as Jenny explained, “if their heads go down and they’re like ‘oh miles
502 off my time I can’t do it’ there’s not a lot you can do.” Further, this was also prevalent in
503 relation to training effort, as she explained a stressor for her was, “swimmers not swimming at
504 the intensity required.” To cope, Jenny used problem-focused strategies, specifically, “I did
505 speak to them and go ‘it’s up to you to put the effort in, I can’t get in there and swim it for you
506 so if you don’t put that effort in then you’re not going to get the results.’”

507 The swimmers also frequently cited the stressor of training performance during the
508 training and tapering phase. For example, after one session Amy reported, “I could have swum
509 faster but my body was just not going anywhere.” Kate described stressors arising from feeling
510 tired in a session and not making target times for sets, while Alice shared the following
511 stressor, “I felt tired, the pool was very warm which tired me out more, I swam like a 5-year-
512 old.” Seemingly aware of the potential response from the coach, the swimmers indicated
513 appraisals related to their coach’s reaction. Amy explained, “I was worried they [the coaches]
514 might say you know move down a lane or something,” while Kate shared, “Jenny wants to see
515 how well we are doing and I think I was the only one not doing well.”

516 For Alice, the primary appraisals underpinning training performance were also
517 associated with her mother’s reaction, particularly her mother responding negatively to her
518 struggling in training. Alice said, “sometimes when I have quite bad sessions or if I’m behind
519 or something my mum will get annoyed with me.” Interestingly, it was only Alice’s mother
520 who recalled a stressor associated with training performance, often writing, “still concerned

521 with her performance in training,” and expanding in the interview saying, “she wasn’t training
522 well... I thought ‘oh god she’s training rubbish, what’s the matter with her?’”

523 Coping strategies adopted by swimmers and mothers, were predominately emotion-
524 focused. For instance, Amy sought social support from her mum and her coach and perceived
525 this to be effective (4/5) because she found it useful to use people as a sounding board to voice
526 her concerns. She stated “I just try to talk to as many people as I can so I can get it out of my
527 system.” Katherine (Alice’s mother) also sought social support from her daughter, explaining,
528 “I said to her today it’s only 3 and a half weeks, start pulling your finger out you know you’ve
529 got to start keeping up.” Katherine cited that this was only partially effective as a coping
530 strategy (3/5) because she believed it helped her but not Alice and that Alice did not really
531 listen to her. Additional coping strategies used to manage stressors of training performance
532 were distraction techniques (e.g., watching TV) and positive reframing, as Kate said, “I just
533 thought well it’s gonna happen sometimes [training poorly] or its hitting me today maybe it
534 will hit someone else in a couple of days time.”

535 **Competition-related demands.** Beyond factors influencing training and subsequent
536 training performance a number of specific competition-related stressors were recalled during
537 the tapering and competition phase. These stressors are focused upon perceptions of
538 swimmer’s preparation, parents and swimmers’ expectations, and performance expectations
539 and outcomes.

540 *Swimmer preparation.* During competition, coaches, mothers, and swimmers
541 highlighted stressors regarding the quality of swimmer’s preparation to perform in competition.
542 For Jenny, it was swimmers’ physical preparation that she found demanding. She wrote in her
543 diary, “swimmers not preparing enough (swim downs).” This was reiterated by swimmers and
544 parents, for instance Alice explained that a stressor was, “the warm up mostly because
545 sometime I feel like I haven’t done enough” and this was shared by her mother who stated, a

546 stressor was, “we were not very organized this morning which made us late... she arrive at
547 7.55 just in time for warm up.” Further, a lack of recovery time, which could subsequently
548 impact upon performance, was also cited as a stressor. As Sian explained, “I didn’t really have
549 time to recover... didn’t know the races were so close together. I thought I had more time I was
550 quite worried I would struggle in the race.”

551 The primary appraisal of this stressor was also similar for all participants, with concerns
552 raised regarding the potential impact upon race performance and outcomes. For instance, Jenny
553 explained she felt, “Cross, putting their swims in jeopardy” and Alice explained this stressor
554 was threatening because, “I haven’t trained much in the stroke and then I think I haven’t done
555 it in the warm up.” For Katherine, the stressor was also appraised in relation to the coach’s and
556 her daughter’s reaction. As she explained, “I felt worked up and on edge. I blamed myself for
557 not getting the both of us organized and I felt angry that my daughter was worried and the
558 coach would not be happy if she found out.”

559 To cope with this demand, all parties turned to others for support. For example, Jenny
560 sought social support from other coaches, writing, “I sounded out to [another coach]” and rated
561 this as partially effective (3/5) because she had not addressed the problem. Katherine, however,
562 talked to Alice to try and reassure her, she wrote, “I talked to Alice to try and calm her down
563 and told her to apologise to the coaches and concentrate on her warm-up and races.” Katherine
564 did not perceive this to be very effective (2/5) as it did help her (Katherine) calm down. She
565 also sought social support from Alice by attempting to speak to her in the car journey to the
566 competition, she explained, “I think she worked herself up too much and didn’t prepare
567 mentally properly that’s why I tried to speak to her in the car.” However, this was rated as an
568 ineffective coping strategy (0/5) because she did not perceive Alice to listen to her.

569 *Parent and swimmer expectations.* The main stressor Jenny encountered across the
570 phases were parent expectations. As Jenny explained, “they [parents] always ask for them to

571 improve or because they expect PB's and if not they question you on it... ” For some
572 swimmers, this was a stressor they also echoed, for instance, one swimmer described a stressor
573 as, “just like having little arguments with them [parents] because of swimming... like if I'm
574 not training well yeah she [mother] just gets annoyed, my mum gets annoyed I wasn't
575 swimming well.” Jenny's primary appraisal for parent expectations was associated with her
576 coaching ability. Jenny was concerned that parents were questioning her coaching ability, as
577 she explained, “the parents need to learn... I wouldn't have created the swimmer that I've
578 created if I didn't know what I was doing.”

579 To cope with parental expectations Jenny used problem-focused coping, asking the
580 swimmers to talk to their parents. Jenny said, “I try and prep the swimmers... I just reiterate all
581 the time because we were coming up to [meet] and it was ‘right you know we are not, this is a
582 see how we are meet, you know? Don't want your parents getting too worked up about it, it's
583 nothing major you know you've gotta stay calm.” Jenny also spoke to the parents directly
584 regarding expectations for the meet. Jenny wrote in her diary, “spoke to parents, explained that
585 we are training through this meet and PB's are not expected.”

586 Another stressor Jenny experienced during training was swimmer expectations,
587 particularly with regards to their performance at a non-tapered meet. Jenny said, “Going into
588 [name of meet] when they didn't swim well there were some sad faces and it doesn't matter
589 how much you tell them that that [getting a PB] isn't going to happen, it doesn't make any
590 difference.” The primary appraisal for this stressor was associated with swimmer reaction,
591 particularly the potential for swimmers to have a negative experience if they did not swim as
592 well as they thought they should. Jenny said, “It's not nice when they do get upset and they're
593 trying and they [swimmers] don't understand why and I do find that stressful you, don't like to
594 see them upset.” To cope Jenny used problem-focused strategies by speaking to her swimmers

595 and informing them that this was not an important meet, thus reducing their expectations.

596 Jenny perceived this to be an effective strategy (4/5).

597 *Performance expectations and race outcomes.* The main stressor Jenny experienced
598 during competition was performance expectations and race outcome, as Jenny explained, “erm
599 the girls [name of event] was a little bit stressful because both girls didn’t swim well in it they
600 didn’t PB... so that was a little bit stressful because we had put such an emphasis on this
601 meet.” This stressor was shared with the swimmers and mothers. For instance, Amy wrote a
602 stressor was, “First event back since hard training,” while her mum wrote, “[Amy] she hasn’t
603 PB’d in this event for over a year now... I just keep thinking in my head that maybe it’s gonna
604 be the next one now, I keep expecting her to take a chunk of time off.” Sian similarly
605 explained, “I was worrying about the [name of event] and getting a good time for it.” While her
606 mum wrote, “I just get really nervous before she races, really nervous.”

607 The appraisals of this stressor were varied but for the coach were generally associated
608 with the impact that poor performances might have future performances. As she explained, “I
609 was a little bit worried that them not swimming well in that it would then affect them for the
610 rest of the meet.” Kate meanwhile appraised this stressor relative to obtaining qualifying times
611 for certain competitions, especially in her main event, as she said, “erm I think it was my 200
612 free final on Friday where I didn’t get the trials time in the morning” and also for her finals
613 performance as she said “in the final I got more and more stressed because I didn’t get the time
614 in the morning.”

615 Both parents and swimmers also appraised performance outcomes relative to others’
616 reactions, namely the reaction of the coach or each other. As Kate explained:

617 When we did a cold swim a couple of weeks ago I did a faster time and Jenny was like
618 “oh you can do that in the race” and then leading up to the race I didn’t do it, so it kinda
619 like worried me a bit thinking like “I can do it in training but I can’t do it here.”

620 Alice meanwhile stated, “Jenny wanted me to do certain times... I felt like I disappointed
621 Jenny because I didn’t do what she said.” Swimmers were also concerned about their parents’
622 reactions and parents were worried about swimmers’ perceptions. For instance, Katherine
623 described, “I don’t want her to be upset, she’s put the work in and she’s done a terrible race.”

624 Participants used a variety of strategies to cope with the stressor of performance
625 expectations and outcomes, a number of which were inter-related. For instance, Jenny said, “as
626 soon as they got out [of the pool] I sent them for the swim down and then when they came
627 back to me I sat and had a chat to them...” Jenny perceived that this was a partially effective
628 coping strategy (3/5) because, “it reduced mine [stress] because it did look like they were
629 listening but the stress wasn’t totally alleviated until they’d raced their next race.” Kate
630 explained that these coach briefings were a useful coping strategy for her, saying she coped by
631 “just focusing on the coach and try to like get her view of it.”

632 Amy sought support from her mum and her coach before and after races. Amy felt she
633 benefitted from these talks because, as she said, “If I know what I’m doing it’s easier too,
634 whereas if she [coach] said go and swim I wouldn’t know how I was supposed to swim it.”
635 Social support was rated as an effective coping strategy (4/5) because Amy felt positive about
636 her races. Participants also recalled using numerous avoidant coping strategies, for instance
637 Kate said she “kinda talk[s] with the other girls just about different things and just tries to
638 make like conversation and tries to just like laugh and just not think about the race,” while
639 Hazel said, “just talking to the other mothers and chilling out.”

640 Discussion

641 This study aimed to explore the individual stress experiences of youth swimmers,
642 parents, and coaches, while also identifying the common or shared stress experiences of these
643 individuals. Specifically, we sought to identify the inter-relation between stressors, appraisals,
644 and coping strategies within the athletic triad. Overall, findings indicate that participants had a

645 range of stress experiences, encountering competitive, organizational, and personal demands,
646 with the appraisals related to factors such as training progress, competition performances, and
647 reactions of others. The types of stressors and appraisals observed in the study appeared to
648 change across time. Particularly, there was a shift from experiencing organizational stressors
649 during the training and tapering phases of the study towards encountering competitive stressors
650 and subsequent appraisals with a greater performance and outcome focus during the
651 competition phase. Numerous coping strategies were employed by participants to manage the
652 demands they encountered, with varying degrees of perceived effectiveness reported.

653 Perhaps one of the most pertinent findings of this study was the extent to which parents
654 and children's stress experiences were mutually shared. The stressors and appraisals
655 experienced, as well as the coping strategies employed by swimmers and parents, were closely
656 interrelated, demonstrating the complexity of the parent-child relationship. Such a finding
657 reinforces previous literature indicating that adolescent athletes are reliant upon parents to
658 manage demands (Fletcher et al., 2006; Tamminen & Holt, 2010a), while also extending our
659 understanding of parents' reliance on their children to help parents themselves manage the
660 stressors they experience in sport (e.g., Burgess et al., 2016). Interestingly, although social
661 support is frequently reported as an effective strategy to manage stressors (cf. Crocker,
662 Tamminen, & Gaudreau, 2015), in this study parents' heavy reliance upon social support
663 appeared to exacerbate the stressors both they and their children experienced. Parents often
664 perceived that seeking social support from their child was ineffective because the child did not
665 react positively and/or the problem was not dealt with. Tamminen and Holt (2010a) similarly
666 identified that social support can be detrimental if athletes perceived parents' social support as
667 a stressor rather than a support mechanism. As such, it may be beneficial for parents to receive
668 guidance on how to proactively access other social resources, as well as draw on more
669 problem-focused coping strategies, rather than having to rely on their children.

670 This complexity of influence between parents and children is supported by
671 developmental psychology literature that has highlighted the reciprocal nature of the parent-
672 child relationship, with specific parenting styles influencing children's behaviors and children
673 influencing their parent's behaviors (Dorsch et al., 2009; Grolnick, 2003; Holt et al., 2009).
674 Congruent with the findings of Holt et al. (2009) the current study supported the notion of
675 emotional contagion effect (George, 1990), with children's negative emotional responses to
676 stressors being transferred to parents, subsequently leading the parent to take action to reduce
677 or buffer their child's negative emotions (Dorsch et al., 2009). Such a finding provides further
678 evidence of the social nature of emotions, and the critical need to ensure that assessments of
679 stress and coping appropriately account for intra- and interpersonal influences (Smith, Bundon,
680 & Best, 2016; Tamminen & Bennett, 2016).

681 Our study also found that children influenced their parents' stress experiences,
682 consistently seeking social support from their parents to manage the stressors they experienced.
683 In seeking such emotional and social support, swimmers may actually increase the demands
684 placed upon their parents as parents indicate that they struggle to know what to say and how to
685 respond to their children, while also attempting to manage their own emotions (Knight & Holt,
686 2013). One instance in the current study in which parental guidance appeared particularly
687 beneficial or desirable for the swimmers, but was also reported as a large demand for parents,
688 was when swimmers were anticipating a negative reaction from their coaches.

689 Unfortunately, because coaches often find parental involvement to be demanding and
690 recall parents "interfering" in training and competitions as a stressor (Knight & Harwood,
691 2009), many organizations and coaches are attempting to limit parents' engagement with
692 children at training and competition (cf. Holt & Knight, 2014). In doing this, coaches may
693 actually be exacerbating the stressors that children are experiencing, some of which may be
694 stemming from the coaches' own behavior, by removing access to one of their most important

695 coping strategies. With this in mind, if coaches are going to introduce such measures to
696 “manage” parental involvement, it would seem particularly important that they reflect on their
697 own behaviors and reactions that may negatively influence children’s experiences.

698 The swimmers also appeared to influence their parents’ (and coaches) stress
699 experiences by displaying negative externalizing behaviors in response to specific stressors,
700 which influenced the subsequent stressors and appraisals that parents experienced (cf.
701 Harwood & Knight, 2009a, 2009b). Given the close associations between parents and
702 children’s stress experiences, the findings of the current study provide clear evidence that, even
703 during adolescence, parents continue to play a critical role in young athletes’ sporting
704 experiences. This finding is important because, although it is accepted that parents are
705 important in young athletes’ lives, the focus during later adolescence has often shifted towards
706 the role of coaches and peers as athletes seek to gain emotional independence (Côté, 1999).
707 Consequently, it is often (mistakenly) perceived that parents play a more limited role in the
708 lives of adolescent athletes than they actually do (cf. Holt & Knight, 2014).

709 There was also evidence of shared stress experiences between all three triad members
710 (i.e., parents, children, and coach), particularly in relation to session attendance and movement
711 between squads. Most notably, it appeared that all participants were concerned with how the
712 others would react in certain situations, which subsequently influenced their own reactions.
713 These reactions, in turn, fulfilled the concerns the others held about these reactions and as
714 such, the participants seemed to be trapped in a cycle of encountering demands and subsequent
715 appraisals stemming from the reactions of each other, which were continually being reinforced.
716 Both mothers and coaches indicated that one of their main coping strategies when appraising
717 concerns regarding each other’s reactions was to avoid the other party. Such avoidance is
718 consistent with previous literature on coaching stress (Knight & Harwood, 2009), despite an
719 awareness of the importance of parents and coaches communicating to enhance opportunities

720 for athletes to enjoy their sporting experience and perform at their best (cf. Knight & Holt,
721 2014). The findings of the current study clearly indicate the negative influence such avoidance
722 behaviors may have on all members of the athletic triad, and provide further evidence of the
723 need to educate parents and coaches regarding open and honest communication.

724 **Limitations and future directions**

725 There are several limitations to our study that should be taken into account when
726 conducting future research in this area. Firstly, one limitation is the lack of detail provided by
727 participants in the diaries. Previous longitudinal studies have identified high non-completion
728 rates, particularly when a single booklet was administered (Nicholls et al., 2005, 2006). To
729 resolve this issue, we administered diaries on a weekly basis and reported relatively high
730 completion rates throughout. However, the quality of information provided in the diaries was
731 sometimes lacking, although this was followed up in the interviews. Further, although
732 participants were encouraged to complete diaries on a daily basis, we did not track this and
733 consequently participants may have forgotten to record all pertinent information. Thus, future
734 research could consider different methods or approaches to data collection, for example, think
735 aloud protocols or the use of interval contingent diaries.

736 Another possible limitation of this study was participant's interpretation of subject-
737 specific terminology (e.g., stressors, coping effectiveness). In an attempt to rectify this and
738 accommodate the young age of some study participants (adolescent athletes), stress themes in
739 the diaries were altered and definitions and examples were given at the onset of the study to
740 clarify the meaning of questions. Despite these definitions it was clear that participants still had
741 problems interpreting the diary questions. For example, several participants confused
742 appraisals with demands. However, follow-up semi-structured interviews with participants
743 were used to clarify meaning and the inconsistencies evident in the diaries.

744 To further this research area, future studies should consider extended longitudinal
745 investigations (e.g., over the course of an entire competitive season) in order to fully explore
746 the temporal nature of stress encounters. Similar research that explores the entire stress process
747 within team sports such as soccer or hockey may be salient, especially as there are likely to be
748 more social interactions within a team sport context and consequently there is potential for
749 greater overlap in stress experiences. Another interesting research pursuit would be to examine
750 the influence of other social agents, including fathers, other siblings, and peers, to fully
751 understand the social processes operating in the youth sport environment. Finally,
752 developmental changes warrant further investigation given that athletes' perceptions of
753 stressors and use of coping strategies change with development (Reeves, Nicholls, &
754 McKenna, 2009), as does the involvement of parents and coaches (Côté, 1999).

755 **Conclusion**

756 Our study has provided further support for the transactional perspective of stress,
757 showing the dynamic and recursive nature of the stress process among individuals. It has also
758 provided novel insight into the shared stress experiences operating within the athletic triad
759 (parents, coaches, and athletes) and highlighted the need for further research to fully
760 comprehend the complexity of stress experiences in youth sport. Overall, the findings indicate
761 a clear need for governing bodies, clubs, and practitioners involved in youth sport programs to
762 promote understanding among all individuals within the athletic triad, as well as an
763 appreciation of how their behaviors may influence upon each other's stress experiences. Our
764 study illustrates that education and interventions aimed at reducing negative stress experiences
765 in sport should be expanded beyond a focus on individual experiences to include an
766 understanding of the interpersonal influence on athletes', parents', and coaches' stressors,
767 appraisals, and coping strategies.

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