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Coaches' Perceptions of Athletes' Psychobiosocial States: The Case of Three Tennis
Coach-Athlete Dyads

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Abstract

Considering the limited attention paid to interpersonal aspects of emotions, this study explored coaches' perceptions of athletes' performance-related states and how they used this information for its regulation. Using a case study approach, three coach-athlete dyads from competitive tennis took part in one-on-one semi-structured interviews. Individualized profiling of psychobiosocial states was used to assess athletes' states in most and least successful performances and as a way of data triangulation. Findings indicated that the coaches interviewed paid attention to bodily, motor-behavioural, and operational components of a performance state, and used this information to appropriately adapt their responses to the players' needs, via the provision of positive reinforcement, and performance-related feedback. The coaches described themselves as calm, patient, and understanding; characteristics that appeared to be vital for the coach-athlete relationship and the coaches' emotional competence. Findings are discussed within the contexts of emotion regulation and coach-athlete relationship, and how they might be useful to help coaches develop emotional competence.

Keywords: athlete emotion state, athlete psychobiosocial state, coach behaviour, coach practice, tennis

26 Coaches' Perceptions of Athletes' Psychobiosocial States: The Case of Tennis Three
27 Coach-Athlete Dyads

28 Emotions are an integral aspect of sport performance. Athletes' emotions experienced
29 prior to or during performance can have a direct impact on their behaviour and ultimately their
30 functioning (Jones, 2012). Empirical evidence indicates that emotional regulation is central to
31 success (Lane, Beedie, Jones, Uphill, & Devonport, 2012; Robazza, Pellizzari, & Hanin, 2004;
32 Uphill, McCarthy, & Jones, 2009; Wagstaff, 2014). Previous research has mainly focused on the
33 regulation strategies that athletes typically engage in to enhance their performance (Lane et al.,
34 2012; Lane et al. 2016). Coaches, however, can indirectly influence athletes' emotions and
35 subsequently their performance and wellbeing. Thus, for emotion regulation to be effective, it is
36 important to understand how coaches perceive their athletes' emotions and their role in the
37 emotion regulation process.

38 One theoretical framework acknowledging individual differences in the experience and
39 interpretation of emotions is the individual zones of optimal functioning (IZOF) model (Hanin,
40 2007). According to the IZOF model, emotions are conceptualized as the core component of a
41 person's psychobiosocial state, which can be manifested in psychological (i.e., emotional,
42 cognitive, motivational, volitional), biological (i.e., bodily, motor-behavioural), and social (i.e.,
43 operational, communicative) modalities (Hanin, 2010; Ruiz, Hanin & Robazza, 2016). Hanin
44 (2000) defined psychobiosocial states as situational, multimodal, and dynamic manifestations of
45 a person's total functioning. Athletes experience a wide range of functional and/or dysfunctional
46 (pleasant and unpleasant) psychobiosocial states associated with their performances. Substantial
47 IZOF-based research has focused on the study of the intra- and inter-individual variability in the
48 content or quality and intensity of athletes' experiences accompanying successful and

49 unsuccessful performances (for a review, see Ruiz, Raglin, & Hanin, 2017). Much of IZOF-
50 based research has examined athletes' states associated with two qualitatively opposite
51 performance contexts (i.e., success and failure) as they trigger specific content and intensity.

52 An accurate assessment of athletes' performance-related states is important for emotion
53 regulation. The use of an individualized approach capturing personally relevant and task-specific
54 content of the person's psychobiosocial states has been recommended in the study of athletes'
55 states (Hanin, 2007). Grounded in the IZOF model (Hanin, 2000, 2007, 2010), an Individualized
56 Profiling of Psychobiosocial States (IPPS, Ruiz et al., 2016) was specifically developed for the
57 assessment of athletes' performance-related psychobiosocial states. IPPS explicitly identifies the
58 content and intensity of the idiosyncratic descriptors of athletes' states associated with successful
59 and unsuccessful performances. Extending previous work on the assessment of athletes'
60 experiences, IPPS uses both hedonic tone (i.e., pleasure-displeasure) and functionality (i.e.,
61 success-failure) distinctions to assess the eight modalities of athletes' psychobiosocial states
62 related to performance, with the emotional modality including pleasant states, anxiety, and anger.
63 The practical utility of this profiling procedure in the assessment of athletes' performance-related
64 states has been documented. Empirical evidence supports the use of psychobiosocial states
65 profiling to identify the most task- and person-relevant descriptors of athletes' experiences in a
66 nomothetic manner, making it suitable for comparisons at the inter-individual or group level
67 (Ruiz, Robazza, Tolvanen, & Hanin, in press). The IPPS procedure has also been successfully
68 applied in an idiosyncratic manner to assess self-regulation of the whole range of
69 psychobiosocial states in competitive swimmers (Middleton, Ruiz, & Robazza, 2017). An
70 idiographic approach to psychobiosocial states profiling is most appropriate for the purpose of
71 the current study.

72 Most research attention in the emotion regulation literature has focused on the strategies
73 that individuals use to regulate their own states, a process called intrapersonal emotion regulation
74 (Gross, 2008; Lane et al., 2012; Robazza, Bertollo, Filho, Hanin, & Bortoli, 2016; see also
75 Robazza, Pellizzari, & Hanin, 2004). Yet, no person lives life in utter isolation and recently
76 researchers have started to pay more attention to interpersonal emotion regulation or the
77 deliberate attempts to influence another person's emotions (Campos, Walle, Dahl, & Main, 2011;
78 Friesen et al., 2013; Niven, Totterdell, & Holman, 2009; Rimé, 2007; Van Kleef, 2009).
79 Interpersonal emotion regulation strategies are assumed to serve two goals, namely instrumental,
80 aimed to achieve a particular goal, and hedonic, used to promote pleasant emotions (Tamir,
81 2009).

82 A significant interpersonal relationship in the context of sport is the coach-athlete one,
83 which typically involves behavioural, cognitive, and emotional aspects (Lorimer & Jowett,
84 2009). The coach-athlete relationship is characterized by interpersonal feelings of closeness,
85 thoughts of commitment, acceptance or behaviours of complementarity, and congruence of
86 perceptions, also called co-orientation (Jowett, 2007; Shanmugam & Jowett, 2017). Research
87 evidence indicates that the quality of the interaction between an athlete and the coach can
88 influence athletes' performance, development, and wellbeing (Jowett & Poczwardowski, 2007;
89 Prophet, Singer, Martin, & Coulter, 2017). Central to this relationship is the coach's ability to
90 perceive the psychological state of the athlete and to respond to the athlete's needs.

91 A theoretical model widely used to study individual differences in regard to how
92 individuals engage in processing information related to one's own and others' emotions, which
93 may explain high levels of co-orientation, is the four-branch model of emotional intelligence
94 (Mayer & Salovey, 1997). The model distinguishes four skills or branches related to how people

95 pay attention to, use, understand, and manage emotions. Emotional perception requires basic
96 information processing skills, which lead to attending to, and deciphering emotional messages as
97 they are expressed. The second component relates to the use of emotions to facilitate thought for
98 instance. The third component involves understanding emotions or their meaning. The final
99 branch refers to managing emotions in themselves and in others. Emotion intelligence and
100 emotion regulation literatures have been considered relatively independently until recently
101 (Peña-Sarrionandia, Mikolajczak, & Gross, 2015). Emotional intelligence, however, has proven
102 useful to capture individual differences in emotional regulation.

103 An accurate perception of one's own and other person's emotions might have an impact
104 on the success and effectiveness of sport coaching (Ickes, 2001; Lorimer & Jowett, 2010), while
105 deficiencies in perception may lead to emotion regulation failure (Gross, 2015). People can infer
106 information about the feelings, attitudes, or behavioural intentions of another person via their
107 emotional expression (Van Kleef, 2009). Systematic and recognizable relationships have been
108 found between emotion states, particular body movements, and gesture expressivity (Castellano,
109 Villalba, & Camurri, 2007). Inferences of emotional expressions may be implicit in the way the
110 coach and athlete interact and communicate with each other, leading to emotional or behavioural
111 reactions in the other person (Lorimer & Jowett, 2009). Thus, making accurate inferences of an
112 athlete's emotions or other internal states is an essential skill for the coach, which not only can
113 impact athlete's performance but also their wellbeing. To date, there has been limited research
114 exploring how coaches perceive their athletes' emotional or other performance-related
115 experiences, and how they use such information to self- manage their emotions or to regulate
116 those of their athletes.

140 Merriam (1998) defined a case as “a thing, a single entity, a unit around which there are
141 boundaries” (p. 27). In our study, a coach-player dyad from an individual sport was recognized
142 as a case, a unit of itself with clear boundaries around it. Considering that experienced
143 participants are expected to possess high level of experiential knowledge and awareness
144 (Greenwood, Davids, & Renshaw, 2014), we sought out experienced participants who were
145 involved in high-level competition. Specifically, the criteria for selecting the dyads were: (a) the
146 coach was the main coach of the player, (b) the coach-player dyad were working together for at
147 least one year, (c) the coach was qualified for professional coaching, and (d) the coach-player
148 dyad were involved in international competitions. We also aimed for a balanced representation of
149 gender (i.e., male and female coaches of male and female players). Three high-level tennis
150 coach-player dyads were recruited purposefully from the Swiss national squad and the Swiss
151 Tennis Academy, where most experienced players practice. The dyads had been training together
152 between one and three and a half years (*Mdn* = 3). Coaches' education ranged from License B
153 level (minimum level of professional coaching) to Swiss Olympic License (highest level of
154 professional coaching). The players' ages ranged from 19 to 22 years (*Mdn* = 21). The players
155 had a median of 15 years of playing experience, ranging from 15 to 17 years. All were highly
156 skilled players and had experience playing internationally. The coaches' experience in the job
157 ranged from one to seven years (*Mdn* = 5). All participants at the time of the study resided and
158 trained in Switzerland, while they had variable ethnic/cultural backgrounds coming from central,
159 north, and east Europe countries. Concerning gender representation, the dyads consisted of a
160 male coach coaching a female player, a female coach coaching a female player, and a male coach
161 coaching a male player.

162 **Data Collection**

163 **Interviews and Interview Guide.** Data were collected via individual semi-structured
164 interviews with each coach and player separately. The first author, a former competitive tennis
165 player, conducted all interviews. Two interview guides, one for coaches and one for players,
166 were developed in two languages (English and German) to accommodate the native languages of
167 the participants. The development of the interview questions was informed by the four-branch
168 model of emotional intelligence (i.e., perceive, facilitate, understand, and regulate emotions) and
169 the eight modalities of performance-related states (i.e., emotional, cognitive, motivational,
170 volitional, bodily, motor-behavioural, operational, and communicative). Before starting to
171 interview the participants, two pilot interviews were conducted, one with a coach and one with a
172 player who were not otherwise involved in the study. This allowed for the wording and sequence
173 of questions to be refined and the development of the research instrument. Following the pilot
174 interviews minor changes were made, mainly to ensure clarity and understanding of the
175 questions.

176 The interview guides for both coaches and players contained four sections inquiring
177 about: (1) demographic information, (2) the coach-athlete relationship, (3) awareness with regard
178 to player's emotional experiences, ways of expression and regulation strategies, and (4) how the
179 coach and athlete worked together in regards to player's states regulation. In particular, in the
180 first section coaches and players were asked separately about their age, sport/coaching
181 experience, etc. Players were asked about their tennis career (e.g., Could you describe your
182 sports career to the present day?), while coaches were asked to describe their coaching career
183 (e.g., Can you describe shortly your coaching career up to this date?). In the second section, the
184 coach-athlete relationship was explored. Examples of questions asked to both were: Could you

185 describe your relationship with your coach/player (as appropriate)? What is important in building
186 the coach-athlete relationship? In the third section, we explored awareness of player's
187 performance-related states, the expression of these states, and any strategies the player used in
188 their regulation. Coaches and players were asked questions like: What emotional experiences do
189 you (or the player) usually have on the court? How do you usually express your emotions? How
190 do you regulate them? To facilitate recall for the player, we asked them to identify the most and
191 least successful game performances and to elaborate specifically on these. At this point, IPPS
192 (see next section) was incorporated to the players' interview. IPPS was also used with coaches
193 using the same situations identified by the players. In the fourth and final section, the coaches
194 were asked about their practices for working and supporting athletes' emotion regulation, while
195 the players were asked about any expectations they held for the coach to help with emotion
196 regulation.

197 **Psychobiosocial States.** IPPS (Ruiz et al., 2016) is an idiographic profiling procedure to
198 assess the content (type) and intensity of eight modalities of a performance state (i.e., emotional,
199 cognitive, motivational, volitional, bodily, motor-behavioural, operational, and communicative).
200 The procedure uses a stimulus list of 74-adjectives presented in 20 rows, each forming an item.
201 Each modality is represented by two rows of synonym descriptors (3-4 per row), one for
202 functional states and another for dysfunctional states. Six items, namely functional pleasant
203 states, dysfunctional pleasant states, functional anxiety, dysfunctional anxiety, functional anger,
204 and dysfunctional anger, assess the emotional modality. Participants are asked to choose one
205 adjective per item to describe their states prior to performance. Following, participants rate the
206 intensity of their states using a modified Borg's Category Ratio scale (CR-10; Borg, 1982), using
207 the following anchors: 0 = *nothing at all*, .5 = *very, very little*, 1 = *very little*, 2 = *little*, 3 =

208 *moderate*, 5 = *much*, 7 = *very much*, 10 = *very, very much*, and • = *maximal possible*. The score
209 of 11 is assigned to *maximal possible*. Then, for each descriptor they rate its perceived functional
210 impact on performance with regard to being helpful (+), harmful (-), or hard to say (0). Examples
211 of items are: “alert, focused, attentive” (cognitive functional modality) and “distracted,
212 overloaded, doubtful, confused” (cognitive dysfunctional modality).

213 Back translation procedures (Brislin, 1986) and expert reviewers (Sperber, 2004) were
214 used to develop a German version of the individualized profiling. Initially, the original English
215 version was translated into German by the first author, a German-English bilingual. Following, a
216 panel of four bilingual experts compared the translated and original versions. The translated
217 descriptors were individually evaluated by each expert who rated the items on a scale with the
218 following anchors: 1 = *no change*, 2 = *change in wording*, and 3 = *retranslation* (with
219 suggestions offered by the expert). The panel of experts extensively discussed the ratings and
220 based on their suggestions changes were made to retain the meaning of descriptors. Then, a
221 bilingual individual, not previously involved, translated the revised German version back to
222 English. This translation was compared to the original profiling procedure and extensively
223 discussed by the researchers who agreed that the meaning of the original items remained the
224 same.

225 **Procedure**

226 Permission from the head of education of the Association of Swiss Tennis to recruit
227 players and coaches was requested and granted after the general purpose of the study was
228 explained. The Swiss Tennis Database was used to recruit most experienced participants for this
229 study. Swiss Tennis, nine Partner Academies of Swiss Tennis, and nine other tennis institutions
230 across the German speaking part of Switzerland were contacted via email. Eight of the invited

231 institutions replied to the communication and four of them became interested in participating.
232 Players and coaches from their premises were hand out an invitation letter outlining the aim of
233 the study, emphasizing voluntary participation and confidentiality of data. Of the six invited
234 dyads, five accepted and three were interviewed, as most representative with regard to gender
235 (i.e., male and female coaches of male and female players). One on one interviews were first
236 conducted with the players and then with the coaches at separate times. At first, each player was
237 interviewed and asked to identify their most and least successful performances and to assess their
238 psychobiosocial states using the IPPS. Following, the coach of the player was interviewed and
239 asked to assess the player's psychobiosocial states on the profiling procedure using the same
240 most and least successful performance occasions identified by his/her player. The profiling
241 procedure was integrated in the interview. Data collection was conducted in accordance with the
242 American Psychological Association's standards for research and publication, as specified in the
243 Ethical Principles of Psychologists and Code of Conduct (American Psychological Association,
244 2010). Following ethical guidelines, each participant was informed about the study purpose and
245 the procedures, and assured confidentiality of the responses. A signed informed written consent
246 was obtained regarding study participation and the audio recording of the interviews. The first
247 author conducted all interviews in a mutually convenient time and location. Four interviews were
248 conducted in German and two interviews in English. On average each interview lasted 50 min
249 ranging from 45 to 65 min.

250 **Data Analysis**

251 Interviews were transcribed verbatim and pseudonyms were ascribed to ensure
252 anonymity of the participants. The four interviews conducted in German were translated to
253 English by the first author and checked by a German-English speaking sport psychology

254 researcher, external to the study and knowledgeable on tennis. According to Merriam (1998),
255 data analysis is “the process of making sense out of the data...[which] involves consolidating,
256 reducing, and interpreting what people have said and what the researcher has seen and read--it is
257 the process of making meaning” (p. 178). For our cases, we worked to make sense out of what
258 coaches and players shared in the interviews while their answers on the individualized profiling
259 procedure revealed descriptors on situation-specific performance-related states that allowed us to
260 have trust in the interview data. Following prolonged engagement and familiarization with the
261 transcripts by the three authors, each interview was inductively and deductively analysed.
262 Specifically, the guidelines of Braun and Clarke (2006) were followed for conducting a thematic
263 analysis. The method was chosen as it is a theoretically flexible one for recognizing and
264 classifying qualitative data patterns (Clarke & Braun, 2013) and has been previously used in
265 sports psychology research (e.g., Arnold & Fletcher, 2012). Data were inductively analysed and
266 organized into emerging patterns and themes. Codes were generated based on their relevance to
267 athlete's emotion expression and regulation in order to organize and reduce the data into
268 meaningful parts. The codes were identified at a semantic level, looking for explicit meaning in
269 what participants shared. At the next step, these codes were organized into themes, which were
270 then reviewed and refined. In this step, we considered the existing literature on the eight
271 modalities of a performance-related state as specified by the IZOF model and the four constructs
272 of the emotional intelligence model, thus, combining the inductive with the deductive approach.
273 Lastly, we defined and named the themes before writing up our findings.

274 **Trustworthiness**

275 To ensure inter-rater reliability and establish trustworthiness, triangulation of analysis
276 was used (Lincoln & Guba, 1985). The first three steps of the analysis were conducted

277 independently while in the latter ones we worked jointly and discussed theme organization,
278 definitions, and names until consensus was reached. During discussions, some variance became
279 apparent in the organization of the themes into higher-order themes and particularly in the
280 labelling of one higher-order theme. These variances were re-examined bottom up (starting with
281 the raw data that led us to the theme). During this work, we re-classified three themes and re-
282 labelled one higher-order theme. The joint work was deemed especially beneficial in advancing
283 the analysis and improving the interpretation of the data. The first author, a former competitive
284 tennis player, held a research diary that helped increase self-reflection about subjective values
285 and biases, as well as various aspects that arose during data collection and analysis for further
286 reflection among the authors (see thick description, Lincoln & Guba, 1985). To enhance
287 trustworthiness on the retrospective character of the interviews asking players and coaches to
288 reflect and discuss emotions and emotion regulation strategies, we triangulated interview data
289 with data collected via the IPPS. This profiling procedure was used to assess the content and
290 intensity of players' emotional experiences during their most successful performances during the
291 time working with their present coach. The same procedure was followed for the description of
292 athletes' states before least successful performances. The coaches also completed the IPPS to
293 assess their players' experiences regarding the same performance occasions. Data from the IPPS
294 for athletes and coaches were analysed separately. First, individualized profiles were constructed
295 with players' feeling states in most and least successful performances. Second, profiles based on
296 the coaches' descriptors of players' experiences for the same occasions were developed. Third,
297 players' profiles were compared with those identified by their coaches by calculating the degree
298 of content overlap for each modality using the formula proposed by Krahe (1986). Overlap is the
299 ratio between the number of similar descriptors in two conditions and the square root of the

300 number of descriptors in condition a multiplied by the number of descriptors in condition b.
301 Overlap scores range from 0 (all descriptors are different) to 1 (all descriptors are similar). This
302 formula has been previously used to compare individual perceptions of emotions (Hanin &
303 Stambulova, 2002; Ruiz & Hanin, 2004). Finally, subtractions of intensity values states identified
304 by a player and his or her coach were performed for each state modality to compare player- and
305 coach-generated profiles. Member checking was conducted by providing participants the
306 practical opportunity to acknowledge and/or explore the individualized profiles or graphic
307 representations of psychobiosocial states (Smith & McGannon, 2017).

308 **Results**

309 The following section presents a brief description of the relationship within each coach-
310 player dyad that sets the stage for the content of coaches' perceptions of their players' states and
311 regulation.

312 **The Three Dyads**

313 **Tom coaching Lisa.** The dyad was working together for three and a half years. The
314 relationship was described by Lisa as close and warm, Tom was perceived as a key supporter of
315 hers as a player and person. Reflecting on the relationship, Tom described it as friendly, reliable,
316 and close both on and off the court, as he stated:

317 Our relationship is based on friendship. We have a good and trusting relationship. Lisa
318 comes and talks to me about other problems, not simply tennis-specific issues. I guess
319 you can say that we have a trusting relationship both on and off the court.

320 Lisa felt safe with her coach because she knew that she could fully trust Tom, as she
321 indicated:

322 Tom and I have a pretty good relationship. He supports me as a coach but he is also there
323 for me if I have problems in my private life. I can talk with him about almost anything.
324 There is this special bond between us. I trust him very much.

325 **Sue coaching Maria.** Sue and Maria were working together for a year. The relationship
326 was described by Maria as exceptionally close, inspiring, and empathic. She felt safe and
327 comfortable with her coach on and off the court, which allowed her to be herself. As Maria
328 mentioned:

329 I played really bad tournaments back to back. So, when I came back I was down. After
330 such a hard time you need a person who encourages you to keep working and to see the
331 situation from a more optimistic point of view... and she was that person. She took care
332 of me. We had so many talks and I realized that I can be the real me with her. She gets
333 me... I am not scared to tell her what I did good or bad, whether it is on or off the court.
334 She takes me for the person I am. I am glad that I don't feel afraid to be myself.

335 Sue described the relationship as very deep, trusting, and friendly both on and off the
336 court, as she stated:

337 We have a very, very close relationship. She knows that she can rely on me. She knows
338 that I do anything possible to support her... and I guess, she knows that she can trust me
339 when it comes to tennis-specific aspects... Last season she struggled a lot. She needed a
340 lot of attention, encouragement, and appreciation. I took the time and energy to help her
341 realize that development on and off the court is possible and valuable. I wanted to help
342 her to feel at ease again.

343 **Ron coaching Nick.** The dyad was working together for three years. Nick described the
344 relationship as respectful, well-balanced, and effective considering their achievements. He

367 The three interviewed coaches elaborated on cues they used to recognize the players'
368 emotional states based on the players' actions and reactions. They all perceived the emotional
369 states of the player via (1) *bodily cues*, (2) *motor-behavioural cues*, and (3) *verbal cues* to a
370 lesser extent. Tom and Ron also talked about paying attention to *operational cues* (4) in
371 perceiving the player's states. Paying attention to bodily cues, meant looking closely at their
372 players' body-posture (e.g., tensed posture, shoulder position) and facial expression (e.g., eyes
373 rolling, smiling). The motor-behavioural cues encompassed elements like throwing the racket,
374 slapping one's leg with the racket, brisk walking between games, and lack of coordination,
375 among other things. Regarding verbal cues as signals of emotional expressions, the coaches paid
376 attention to incidents such as cursing or shouting. Lastly, the operational cues involved their
377 player's offensive playing style and changes in the technical and/or tactical aspects of the game.
378 For instance, if the player was moving slower than usual between points or became more
379 introverted than usual, these indicated to the coach an increase of unpleasant emotions. Sue
380 exemplified what she perceived as follows:

381 Her body language during and between points. If she feels down then her energy
382 level drops, her body posture changes. If she doesn't feel well, if she is carrying a
383 lot on her shoulders, if she is heavy-hearted, she still fights but she cannot
384 disconnect. She takes a lot on the court... She is very sensitive, she knows what is
385 going on around her. You see it in her facial expression, her look...

386 From the players' point of view, all three were well aware that they sent
387 information about their emotional states via multiple cues to their coaches. They talked
388 about the bodily signals they sent to the coach via body posture (e.g., head down, tension)
389 and facial expressions (e.g., gazed look, smiling), as well as via motor-behavioural cues

390 (e.g., coordination, throwing racket or towel, clapping on laps), and operational ones (e.g.,
391 making more mistakes, ineffective task-execution). They are aware that these serve their
392 coaches as hints for perceiving their emotions and thoughts. Following is an example from
393 Lisa:

394 I guess it is mainly my body-posture... I guess I show it very openly. If I am
395 playing poorly, I am very nervous, I tense up, and I swear. I start playing like I
396 don't care. I just hit as hard and not as smart as I can. If I feel good, then I fire
397 myself up after points by shouting c'mon or allez... and I guess he can also know
398 how I feel by my facial expression. My look is different when I am demotivated or
399 when I am fighting.

400 **Coaches Responses to their Perceptions about Athletes**

401 The interviewed coaches reported using a variety of interpersonal regulation strategies as
402 a follow-up to what they perceived in the athlete aiming to help the player regulate present-
403 moment states. The most common and frequently employed strategies (described by all coaches
404 occurring prior, during, and after practices and matches) were: (1) *adapting their own emotional*
405 *and behavioural responses*, (2) *providing verbal and non-verbal positive reinforcement*, and (3)
406 *giving performance-related feedback*.

407 The coaches elaborated on how they adapted their emotional and behavioural responses
408 according to the players' states and performances to help them regulate their states. The
409 following quote from Ron exemplifies this practice:

410 If he is close to losing his head during practice, I take him out and we sit down for a short
411 time. I tell him to relax, I ask him what the problem is, what is going on in his mind. He
412 starts telling me that it's s**t... I give him some time. I do this on purpose... but of

413 course, I will address it and explain that this [player's behaviour] doesn't work. But not
414 before he has calmed down. I stay positive and calm when he is having trouble.

415 The coaches were aware of the influence their own emotions could have on the players,
416 and considered this knowledge when responding to players' needs. An illustration of this is
417 provided by Tom:

418 I believe that my emotions can influence a player. With women more than with men... If
419 you get on the court and you are in a bad mood or stressed out, women will recognize it
420 instantly while guys are less perceptive... and often, they are then directly more stressed
421 out or tense. So, you have to be extremely careful, especially with women. Over time you
422 get to know each other, and I also start realizing immediately if something is wrong.

423 Therefore, I try not to show my emotions openly.

424 All coaches emphasized adapting their emotional and behavioural reactions to the
425 players' needs, as every player has a unique way to be approached. For instance, Ron said, "With
426 another player I had to show more emotions. Some players like it when coaches are charged with
427 emotions and experience the players' performances vividly. Nick does not need it." Tom
428 explained that his player, Lisa, needed his coach to be positive but not to overwhelm her with
429 positive and motivational speeches, as these do not work for her.

430 The players appeared to know that the coaches adapted to their emotions to help
431 them regulate their current states. They reported experiencing the coaches' adaptive
432 behaviour as helpful for regaining an optimal performance state during practice and
433 competition. The following quote by Lisa is indicative of this:

434 I think that he adapts to my performance. If I am playing poorly then he doesn't
435 pull me down. He regulates his emotions so that he can help me... Actually, Tom

436 does not show his emotions. He always claps after a good point and he says 'super',
437 'well done', or 'it does not matter, keep playing' ... When he recognizes that I am
438 getting angry or nervous, he stays calm, he is not that kind of coach, who jumps up
439 and shouts 'yes', 'very good', he stays calm ... after a good point he praises and
440 fires you up. So, he calms me and supports so I can get myself back together.

441 All players acknowledged the positive impact of the coaches' adaptation to their emotional
442 states. They perceived their coaches as a key resource for regulating their psychological
443 and behavioural states in practices and competitions. They emphasized how coaches helped
444 them to calm down when emotions were too intense on the court. As Maria said:

445 In some situations, she smiles while she tells me what I need to do differently. She
446 can say it in a nice way when I am in a good mood. Then, I understand what I need
447 to do, but when I am in a bad mood... Then I need someone who tells me directly
448 and in a strong tone what I need to do. If she sees that I am in such a bad mood, she
449 picks me up. She would tell me that we leave this 'bad mood planet' and go to
450 another planet and play tennis again. She adapts her behavior because she cares.

451 The second interpersonal emotion strategy identified in the data was providing
452 verbal and non-verbal positive reinforcement, which was employed by all coaches. They
453 all were aware that they influenced the players' beliefs and emotions by encouraging and
454 reinforcing them. As Tom indicated, "Generally said, the most important thing is that a
455 coach believes in his player. You should not use negative gestures; show consciously that
456 you believe in your player, say stuff like, come on!" The coaches also pointed out how
457 important it was to remind the players of their strengths and of past occasions they played
458 and/or responded well. Positive reinforcement was used to put performance into

459 perspective and to reflect on the situation to deal with or avoid irrational thoughts and
460 boost the player's confidence. The following quote from Ron exemplifies this:

461 I always try to support him and to verbally encourage him ... As a coach you listen,
462 you try to put the performance into perspective; you outline the positive aspects;
463 you tell him that it is not as bad as he thinks; you try to give him back some
464 confidence... you highlight the good aspects.

465 Aside from verbal reinforcement, non-verbal boosts appeared to be also essential,
466 considering that in tennis during competition (and in some practice conditions) there is no
467 time and place for discussions. Therefore, positive looks and gestures (e.g., showing a fist,
468 thumbs up) were aids that could help players with their up-regulation. Tom said on this:

469 We are always in a certain contact on the court. If I am close enough, I can give her
470 some short inputs such as "Come on!" But sometimes it doesn't work; sometimes
471 you are too far away and in such occasions you try to support the player with
472 positive gestures.

473 The players perceived coaches reinforcement to be helpful and supportive. They
474 believed that positive gestures and encouraging remarks positively affected both their
475 emotional states and motivation. As Lisa said:

476 He encourages from the sideline, this is very important. If you do not believe in
477 yourself, you have the feeling that there is somebody who believes in you... He is
478 usually next to the court saying things like 'c'mon', 'move'. He tells you what to do
479 because you can get lost in tennis. He tells you 'it is possible', 'I believe in you',
480 'just stick to this or that...' This helps you to believe in yourself again.

481 Another strategy reported by the coaches was giving performance-related feedback.
482 Immediate and clear feedback during and after performances was described as valuable
483 and effective for the athletes to regulate their states. The coaches explained that during
484 practices they interfered either after a point or during breaks to discuss mistakes and
485 struggles. The purpose of this feedback was related to technical and tactical errors, while at
486 the same time they paid attention to the content and form of feedback delivery to minimize
487 or avoid players' emotional reactions such as frustration. The coaches agreed on keeping
488 feedback positively toned, while negative aspects of the performance were not ignored;
489 instead they focused on correct task-execution rather than mistakes. The following account
490 from Tom exemplifies this:

491 I pick out aspects, which are, to some extent, good and emphasize the positives [in
492 her game]. I explain to her what she needs to do differently next time to get better.
493 After we talk about the positive aspects, I illustrate the ones that are not so good.
494 But I try to stay positive; I point out what we need to keep working on.

495 Sue commented on the type of feedback and how she conveyed it:

496 I try to convey the things to improve in a positive manner. I do not tell her that she
497 performed badly. I tell her that we will integrate this aspect in the next training
498 sessions and work on it... I point out her potential and I try to emphasize the
499 aspects we can work on and the aspects we can improve. This gives her a good
500 feeling... during practice sessions, I immediately point out what she has to do. We
501 always try to talk with each other in a positive way. But, of course, she needs to
502 know that she has to work ... but no criticizing, never! This does not work with
503 girls.

504 The players were conscious of the coaches' use of feedback for technical, tactical,
505 and mental aspects. They also pointed out that they perceived feedback as encouraging,
506 regardless of its content. Below is an example from Lisa:

507 If he [coach] asks me to change my game or strategy and I just stick to the old way,
508 then he gets angry. He takes me out and explains what I did wrong. But I know that,
509 even if I play poorly, there is always something I can improve. ... If I make a
510 mistake, which is pretty normal in tennis, I get nervous. But then he says things like
511 'it doesn't matter', 'keep playing', 'focus on the next hit!' This is very helpful, it
512 gives me security, and it helps me believe in myself again.

513 **Who Are These Coaches?**

514 With all that coaches and athletes talked about, we identified certain characteristics
515 commonly shared by these coaches and viewed as key for building and maintaining a close,
516 trusting, and supportive coach-player relationship. These were: (1) *being calm*, (2)
517 *communicating their care for the player*, and (3) *working to build trusting relationships while*
518 *demanding high standards of performance*.

519 The three coaches described themselves as being calm. They highlighted that tennis
520 players often become emotional on the court, which requires from coaches to be patient. They
521 shared the intention to radiate a sense of calmness before, during, and after performances and
522 view this as a strength and key element for creating a close relationship with the player. The
523 following quote from Ron describes the benefit of being calm:

524 It comes naturally to me to stay calm and patient. I bring back the balance. When I
525 see that he [the player] is on the edge to explode and I could get angry too, then
526 everything would blow off. Instead, I keep calm and try to calm him down.

527 The players also talked about their coaches being calm and further described them as well
528 balanced. They experienced the coaches' calmness on and off the court as beneficial and
529 helpful for their own performance and psychological states. As Nick said:

530 I think he is calm and he can stay very calm. Sometimes I get a little angry on the
531 court. I think we are a good mix there; he brings the calmness on the court. That is
532 really good part of him. ... I think his calmness is the best thing... he brings me
533 down.

534 Concerning this calmness, the coaches said that they normally do not have trouble in maintaining
535 it, even if a player was performing poorly or losing the match. Particularly Sue said:

536 [At the tournaments] I never had the impression that I got upset. I rather felt sorry for her
537 after defeats because I knew how important it had been for her and her family, for her
538 self-confidence. I can calm myself down. I focus on her. I try to stay calm and be
539 positive. I always try to stay in the green zone with Maria. But I never had the feeling that
540 I had to pull myself together.

541 The coaches agreed that when reaching a certain point, they could also change the tone of
542 voice and reprimand the players. Two of them pointed out the importance of personal time to
543 regain their emotional balance. A tough match or a stressful day also has an impact on the
544 coach's psychological states; who may feel tired, stressed out or frustrated by the situation. In
545 order for their emotions not to trigger dysfunctional reactions in the player and to maintain a
546 supportive interaction with the player, these coaches took a step back. As Tom shared:

547 If I realize that there is generally too much going on – it doesn't really matter if it is
548 stress, tiredness or something else, I try to get some rest. I am a person that needs

549 rest to recharge my batteries. I back out. I might do some computer work, some
550 exercise, go for a walk or get some fresh air.

551 The coaches also elaborated on the value of communicating their care for the
552 player, and emphasized the importance of listening and being genuinely interested in them.
553 In their view, to build a successful and effective coach-athlete relationship, the coach ought
554 to invest time on and off the court to listen to the player's concerns, desires, and needs and
555 to take these seriously. For instance Sue stated:

556 She is a very emotional person. From time to time, she needs praise, appreciation,
557 and attention. She needs a lot of affection. I invested time and energy and I showed
558 her that it is important to me that she can succeed and develop as a person both on
559 and off the court, and that she feels comfortable. She needs to feel good to function.

560 The coaches described themselves as passionate about the job and aware of the necessity to
561 be empathic and caring when interacting with the player. The value of bi-directional
562 communication was pointed out when coaches talked about the importance of
563 communicating with the players and developing shared language and values. Coaches and
564 players working in the same direction and for the same goals, facilitated the development
565 of trust, the feeling of mutual commitment and understanding. The following quote shows
566 Sue's take on this:

567 Players need to have the feeling that we care for them. As coaches, we need to
568 show players our respect and interest, and players need to feel understood. Above
569 all, we have to engage with each player individually, we have to provide personal
570 conversations and invest time in them.

571 The players perceived their coaches' care via the use of feedback, which they viewed as a
572 sign of interest and care from the coach and as a mean to merely correct mistakes. When on the
573 court, coaches were seen as focusing on the player unconditionally while avoiding distractions.
574 Players perceived their coaches' undivided interest as an essential gesture of care and a key
575 source for building trust and commitment between them. As Lisa indicated:

576 His key characteristic is his character. He is very understanding, he listens and he
577 gives tips. He doesn't pull you down, he supports you. He feels with you. As soon
578 as something is bothering me, he directly asks me about it; he wants to help me. He
579 notices immediately when I am not feeling well.

580 Lastly, the coaches shared a common approach for building relationships of trust. In
581 particular, they talked about facilitating a non-judgmental atmosphere that supports and
582 encourages players to open up and feel comfortable talking about emotions and thoughts
583 with the coach. The following quote from Sue exemplifies this:

584 As a coach, you need to convey that you care for your players and that you trust
585 them. It is important that the players feel we [coaches] care for them, that we trust
586 them, that they are understood and that they are responded to. Overall, they need to
587 feel that you are dealing with them individually, and that the coach also has
588 personal conversations and really takes time for this.

589 The interviewed coaches also pointed out the importance of keeping a 'healthy' distance
590 on and off the court from the player. The coaches indicated that being a coach was a job where
591 they needed to know how to separate hard work from fun. Tom described his practice as "the
592 carrot and stick approach," where sometimes he would joke with the player but at the same time
593 demanded complete and serious effort in practice. Sues' account describes her approach:

594 In my opinion, players should have fun with what they do. They have to love it...

595 As a player, you have to motivate yourself every day. Therefore, as a coach you
596 should find a way to help players get motivated and to experience fun. Of course, it
597 is hard work, but from time to time you should have time for some fun, time to take
598 it easy. You need to be able to switch from being serious to being easy to being
599 serious again. Finding a balance is important to be successful in the long run.

600 The players described their coaches as trustworthy and loyal, which facilitated and
601 encouraged them to share performance-related and/or personal concerns. They talked about
602 having faith in the coaches and trust they would help them develop as players and persons. Maria
603 shared with us her view:

604 I am not scared to tell her what I did well or badly on and off the court. She takes
605 me for the person I am. I am glad that I don't need to be scared to be myself. I can
606 be really open and share anything without being nervous.

607 The players also acknowledged and welcomed that a line existed between being amicable
608 with the coaches and following their instructions at practices and matches, which were
609 demanding of high standards. They viewed coaches demanding approach as beneficial and
610 crucial for their development as athletes. As Lisa said:

611 When I am not moving enough during an exercise it is enough for her to say in a resolute
612 tone 'Come on, move now!' The second I hear it, something in my mind changes. I start
613 moving. When I am in a bad mood, he stays very positive. But if I say stuff like 'today
614 everything is s**t', then he can get angry and tells me in a clear tone 'well, then just play
615 how you should play!' This wakes me up. It is like a reminder that helps you realize that
616 you are playing badly.

617 Accuracy of Coaches' Perceptions

618 Table 1 presents extracts from what participants shared in the interviews and what they
619 identified on the IPPS with regard to their most and least successful performances. These data
620 indicated accuracy between what athletes experienced and what coaches perceived.

621 < Insert Table 1 here >

622 The coaches' accuracy in perceiving their players' emotional states is supported by
623 the coaches' accuracy in assessing players' performance states via the IPPS. Regarding the
624 content of performance-related experiences, a high overlap was found for all descriptors
625 identified by the coaches and players in each dyad with overlap scores ranging from 0.4 to
626 0.6 for most successful performances and from 0.3 to 0.5 for least successful performances.
627 Highest overlap scores were found for functional motivational and cognitive states, while
628 dysfunctional motor-behavioural and volitional revealed lowest overlap scores.

629 Figure 2 shows player and coach intensity ratings of the player's psychobiosocial states
630 before most and least successful performances. As it can be seen, the coach was rather accurate
631 in assessing the intensity of most state modalities, deviating a maximum of 3 points (out of 11
632 possible points), with the exceptions of the dysfunctional operational modality in most successful
633 performance, and functional volitional modality in least successful performance, for which there
634 was a 5-point mismatch. Similar results were found in the other two dyads. Taken together,
635 contrasts between coaches' and players' intensity ratings in most successful performances
636 indicated highest accuracy for dysfunctional anger with differences in intensity ratings ranging
637 from zero to half point across dyads. Lowest accuracy was found in intensity of dysfunctional
638 operational and dysfunctional communicative modalities, with a discrepancies ranging from two
639 to five points. In contrast, regarding the least successful performances, highest accuracy was seen

640 in functional pleasant, dysfunctional anxiety, dysfunctional anger, and dysfunctional volitional
641 with differences in intensity ratings ranging from zero to one point across all dyads. Lowest
642 accuracy between coaches' and players' ratings was found for the intensity of dysfunctional
643 communicative (differences ranging from one to seven points) and functional anger (zero to six
644 points difference).

645 < Insert Figure 2 here >

646 **Discussion**

647 The study aimed to explore an important ability for coaches, which is that of perceiving
648 athletes' performance-related states in the effort to support them via helping them regulate their
649 states. We focused the exploration on what coaches perceived and what they did with this
650 information. Three high performance tennis coach-athlete dyads helped us pinpoint the
651 following: (i) the coaches paid attention to athletes' bodily, motor-behavioural, verbal cues, and
652 operational components of a performance state; and (ii) they used this information to adapt their
653 own emotional and behavioural responses, to provide verbal and non-verbal positive
654 reinforcement, and to give performance-related feedback. Furthermore, the data revealed that
655 certain characteristics of the coaches were key for the coaches' perception ability and
656 consequently coach-athlete relationship. The coaches were calm, communicated their care for the
657 player, and worked hard to build trusting relationships, while keeping a distance and demanding
658 high standards of performance. We situate the interpretation and discussion of these findings
659 within the context of effective emotion regulation practices and the coach-athlete relationship, as
660 these are key for athletic performance.

661 The coaches in this study paid most attention to athletes' specific bodily and motor-
662 behavioural cues including facial expressions, body posture and gestures. Verbal expressions

663 were also used to identify players' states. These findings are in line with previous research on the
664 relationships between emotion states, body movements and gesture expressivity (Castellano, et
665 al., 2007). Our findings highlight the role of the body in expressing and perceiving emotions,
666 supporting the idea that one's perception of facial emotional expressions may depend on bodily
667 expressions (Aviezer, Trope, & Todorov, 2012). The athletes in our study were aware that their
668 coaches perceived their performance-related state displays and used this information to infer
669 athletes' experiences.

670 Our findings revealed that coaches were aware of how their own states could influence
671 those of the players. Therefore, they actively adapted their own emotional and behavioural
672 responses depending on what they thought the athletes needed at that time. Verbal and non-verbal
673 positive reinforcement provided by the coaches as attentional deployment emotional regulation
674 strategies, which are aimed to direct player's attention towards positive aspects of their
675 performance (Gross, 2015). The coaches expressed nonverbal behaviours to their players
676 sometimes together with verbal reinforcement. These behaviours were positive emotional
677 displays, which were useful in modifying players' appraisals of a situation in order to change its
678 impact. For instance, based on players' reports, coaches' gestures were effectively used to up-
679 regulate the players' emotional experiences and increase their motivation. The coaches also
680 reported providing feedback related to performance, including correction of technical or tactical
681 aspects of performance. Although this would not be considered a direct emotion regulation
682 strategy per se, the consequences of the modification of performance may trigger pleasant
683 emotions. Coaches' interpersonal emotional regulation strategies served both hedonic and
684 instrumental goals (Tamir, 2011).

685 Coaches and players highlighted the importance of trusting each other, sharing language,
686 values, and common goals, as well as being appreciative, all of which are characteristic of an
687 effective coach-athlete relationship. The coaches' ability to perceive and respond appropriately to
688 players' emotional states reflects empathic understanding (Jowett & Poczwardowski, 2007).
689 Based on players' accounts, the coaches' understanding of their feeling states and behaviours
690 results in positive interactions and satisfaction (Lorimer & Jowett, 2009). All in all, our findings
691 provide support to the notion that a coach-athlete relationship is characterized by closeness,
692 commitment, complementarity, and co-orientation (Jowett, 2007; Shanmugam & Jowett, 2017).
693 Being able to perceive and to alter their own behaviour so that it is congruent to the players'
694 needs reflects a high level of emotional intelligence. In fact, emotion perception is the core
695 component of the four-branch model of emotional intelligence (Mayer & Salovey, 1997). This
696 exploratory study presents valuable preliminary information about what coaches perceived, and
697 how this information was used for regulation, which can be used to promote further study of the
698 underlying individual differences in the coaches' perceptions of their athletes' emotions.

699 Results from the IPPS data, indicated that coaches reported somewhat accurately the type
700 of experiences of their players in most successful and most unsuccessful performances, with
701 highest overlap score values of 0.6 (with 1 indicating maximum accuracy). It is important to note
702 that IPPS includes a stimulus list of 3-4 descriptors for each state modality, and an overlap of 0.6
703 would indicate that the coaches are exact in reporting 60% of the adjectives the players used to
704 describe their states, which in this case indicates fairly good accuracy. This accuracy may be
705 explained by the fact that feeling states associated with such memorable situations (i.e., best and
706 worst performances) may reflect functional and dysfunctional experiences that the coach-athlete
707 dyad may be working on to reproduce or deal with, respectively. The accuracy of coaches in

708 perceiving some of the players' state modalities may be challenged by the fact that some of the
709 modalities may only be subtly expressed or the athletes have learned to suppress the expressions.

710 **Limitations and Future Research**

711 A limitation of the present study was the specific target group. It may be that coaches
712 were familiar with the particular elements of emotional expression in tennis, which may have
713 resulted in high perception accuracy. Future research targeting other sports can help ascertain
714 whether or not the findings were characteristic of tennis coach-player dyads. A second limitation
715 is the use of recall, which may be criticized on the basis of reliance on memory. An advantage of
716 recalled experiences, however, is that the examination of the athletes' past performance history
717 allows gathering information about functional and dysfunctional experiences associated with
718 extreme situations (i.e., most successful and least successful performances), which would not be
719 feasible to measure otherwise. Nevertheless, the coaches and players' interview data was
720 triangulated with data collected via the use of the IPPS, which supported coaches' accuracy in
721 perceiving athletes' states. The context of success and failure has been previously used in the
722 study of performance-related states in the past as it allows for the exploration of the whole range
723 of possible experiences an athlete can feel. Moreover, these situations are very significant for the
724 athletes and coaches, who may recall their feelings long after they happened. Future research
725 examining the coaches' perceptions of athletes' actual experiences is warranted. By using a
726 small, homogeneous sample, these results might only provide in-depth insights into the
727 perceptions and experiences of selected high performance tennis coach-athlete dyads. Although
728 this may be considered a limitation of the study, it can also be considered its strength,
729 emphasizing the results in terms of their theoretical transferability instead of their empirical
730 generalizability. A final, yet important limitation is related to the gender representation of the

731 dyads included in the study. A female coach - male player dyad, which is unfortunately still
732 exceptional in the realm of sports, was not included in the study. Thus, future research should
733 look into gender variations with regard to intrapersonal and interpersonal emotion regulation
734 strategies.

735 **Applied Implications**

736 This study extended previous emotion literature by examining the coaches' ability to
737 perceive athletes' emotional states, an area of research important for interpersonal emotion
738 regulation that has received scarce attention. The findings have important implications from an
739 applied perspective. Our findings revealed that the coach has an important role in emotion
740 regulation process. The findings can be used in coach education programs aiming to develop
741 effective support for athlete emotions regulation. For instance, the knowledge regarding
742 particular cues signalling athletes' emotional states is useful for the development of skills in
743 novice and inexperienced coaches. Because the inability to understand, experience, or express
744 emotions effectively leads to loss of social support or disintegration of groups (Niedenthal &
745 Brauer, 2012), it can be assumed that development of such skills in coaches can lead to
746 strengthening coach-athlete relationships. An effective perception of athletes' feeling states and
747 understanding of the impact on their performance is also helpful in the development of athletes'
748 meta-experiences (i.e., preferences, attitudes). As such, coaches, with the assistance of sport
749 psychology practitioners, can help athletes develop effective beliefs and attitudes towards their
750 own experiences instead of focusing directly on changing their emotions. Overall, coaches can
751 be instrumental in the facilitation of an optimal emotional climate. Guiding coaches direct their
752 attention to specific aspects of emotion expression in their athletes may improve their perception,
753 and thus, increase the effectiveness of the inferences about their athletes' internal states. This in

754 turn, may enhance coaches' communication and connectedness with their athletes. Our findings
755 indicated that coaches self-managed their emotions to regulate their players' emotions. This is an
756 important aspect of interpersonal regulation. Increasing novice coaches' awareness of the impact
757 of their own emotions on others may be helpful for a successful and effective coaching
758 relationship.

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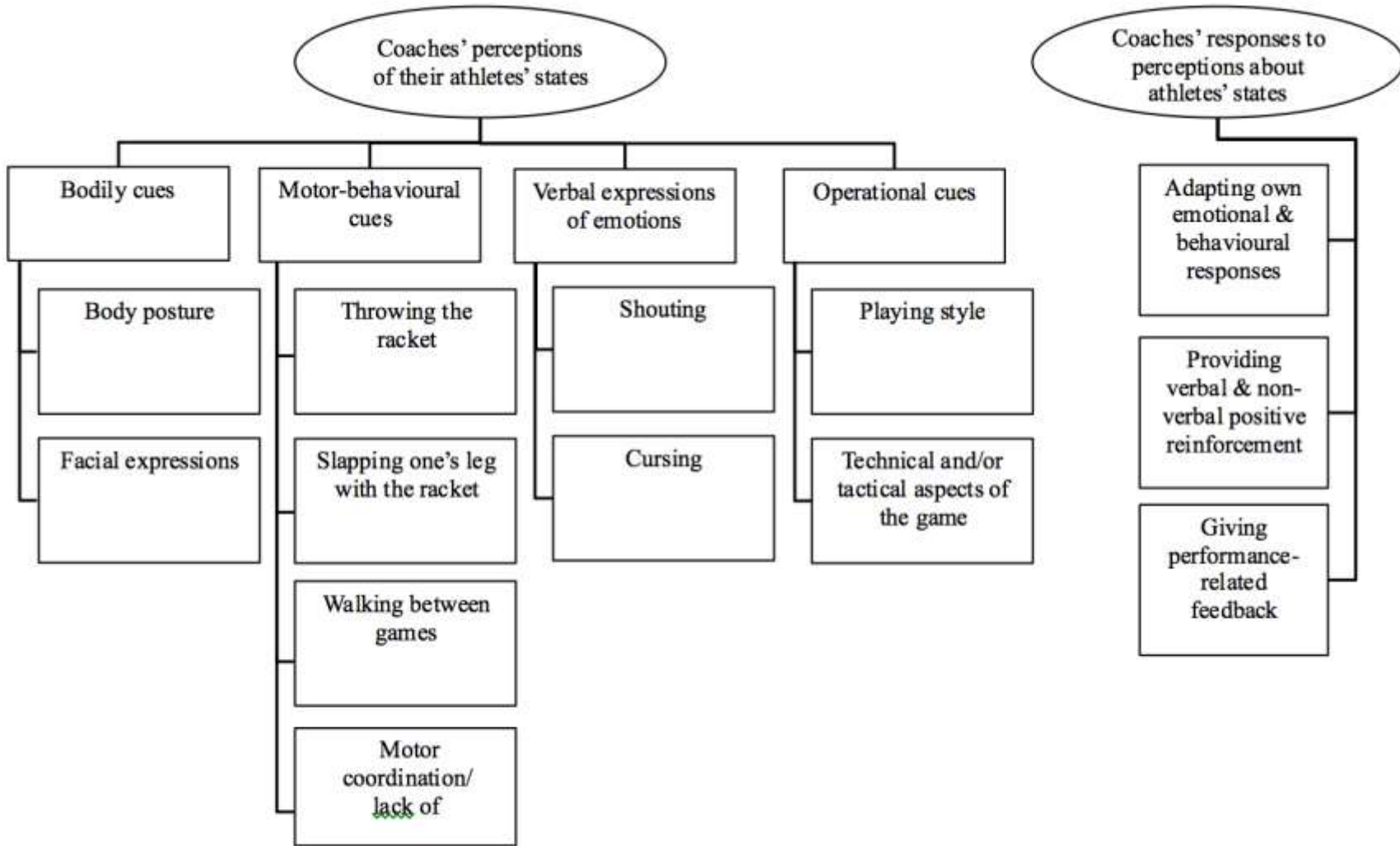
891 Table 1

892 *Athletes' experiences, and coaches' perceptions in most and least successful performances identified by the players.*

Dyad	Most successful performance		Least successful performance	
	What the player felt	What the coach perceived	What the player felt	What the coach perceived
1	<p>I was very self-confident and motivated. My hits were smooth and controlled. <i>Focused, confident, fighting spirit, nervous, pleased, worried, resentful, motivated, purposeful, energetic, powerful movement, powerless, effective, outgoing</i></p>	<p>She was very self-confident what is unusual. Normally, she has self-doubts. ... She played very efficiently. She was motivated and purposeful. <i>Focused, confident, fighting spirit, nervous, complacent, anxious, motivated, purposeful, energetic, physically tense, relaxed movement, effective, unskilful, outgoing</i></p>	<p>I had trouble with breathing, I was very nervous, tensed up. I did not play well; I made a lot of mistakes. I was not carefree and not excited. I was only a bit confident and not very coordinated. <i>Overloaded, attentive, fighting spirit, discontent, satisfied, troubled, irritated, uninterested, motivated, purposeful, unwilling, vigorous, physically tense, coordinated, powerless, skilful, inconsistent, uncommunicative, communicative</i></p>	<p>Her preparation and arrival were poor. She was very stressed when we arrived. From the start on she was not confident, with no fighting spirit. She had doubts, was nervous, frustrated, sluggish and not engaged nor interested. Physically she was charged but in a negative way. She was angry, uncoordinated and clumsy. She didn't manage to calm down. <i>Doubtful, focused, aggressive, nervous, pleased, troubled, irritated, uncommitted, motivated, undetermined, physically charged, physically tense, inconsistent, clumsy, inconsistent, withdrawn, outgoing</i></p>
2	<p>I was very confident and I was first seated. The way I was walking, I did not care</p>	<p>She was very enthusiastic and joyful. She had a high fighting spirit but was relaxed</p>	<p>I remember I was worried, I was thinking what my parents would say. I was confused; I</p>	<p>She had a fighting spirit, but the rest was not so good. <i>Overloaded, focused,</i></p>

	<p>what others might say. I was walking relaxed. Anyway, it felt like I will win 6-1, 6-1. I knew that the ball can't fly stronger and faster than I can imagine.</p> <p><i>Confused, focused, confident, fighting spirit, nervous, satisfied, worried, annoyed, unmotivated, motivated, purposeful, unwilling, energetic, tired, powerful, clumsy, effective, ineffective, alone, connected</i></p>	<p>at the same time. During the match there was a situation with the crowd where she got very annoyed and a bit distracted.</p> <p><i>Distracted, focused, enthusiastic, fighting spirit, nervous, satisfied, concerned, annoyed, unmotivated, motivated, determined, indecisive, vigorous, physically tense, powerful, sluggish, consistent, inconsistent, alone, outgoing</i></p>	<p>didn't really know what to do. I was confident in the first 10min. Then realized there was no confidence. I was not aggressive, not pushing the ball exactly.</p> <p><i>Confused, focused, confident, aggressive, nervous, overjoyed, worried, annoyed, unmotivated, motivated, persistent, unwilling, energetic, tired, coordinated, clumsy, effective, ineffective, disconnected, outgoing</i></p>	<p><i>confident, fighting-spirit, nervous, satisfied, worried, resentful, uncommitted, motivated, determined, undetermined, energetic, physically tense, coordinated, uncoordinated, effective, ineffective, disconnected, outgoing</i></p>
3	<p>I knew already before the match that I have good chances ... I was not confident before the match that I am going to win for sure, but I had good chances. I was OK confident, but not really.</p> <p><i>Focused, doubtful, confident, fighting spirit, nervous, complacent, concerned, irritated, motivated, decisive, physically tense, physically charged, coordinated, effective, unreliable</i></p>	<p>He was worried and concerned. But then he became confident and carefree. ... He was looking forward to the match.</p> <p><i>Focused, doubtful, confident, aggressive, nervous, satisfied, worried, annoyed, uninterested, motivated, determined, indecisive, energetic, physically tense, powerful movement, uncoordinated, skilful, inconsistent, uncommunicative, connected</i></p>	<p>I was not happy on the court, really negative about it, about myself, had no confidence, or enthusiasm. I was too aggressive in my game and in mind. ... I was physically fit because we had a good practice a week before.</p> <p><i>Doubtful, alert, aggressive, dissatisfied, concerned, annoyed, uncommitted, motivated, decisive, undetermined, physically charged, physically tense, powerful movement, uncoordinated, unreliable</i></p>	<p>He was neither confident nor happy. ... He was not relaxed, but was quite coordinated.</p> <p><i>Doubtful, attentive, confident, aggressive, dissatisfied, troubled, furious, uncommitted, motivated, persistent, unwilling, physically charged, physically tense, coordinated movement, sluggish, inconsistent, disconnected</i></p>

893 *Note.* In normal font are data extracts from the interviews and in italicized font are psychobiosocial states identified on the IPPS.



895

896 Figure 1

897 Superordinate and subordinate themes identified regarding what coaches perceived and how they responded in relation to their players' states

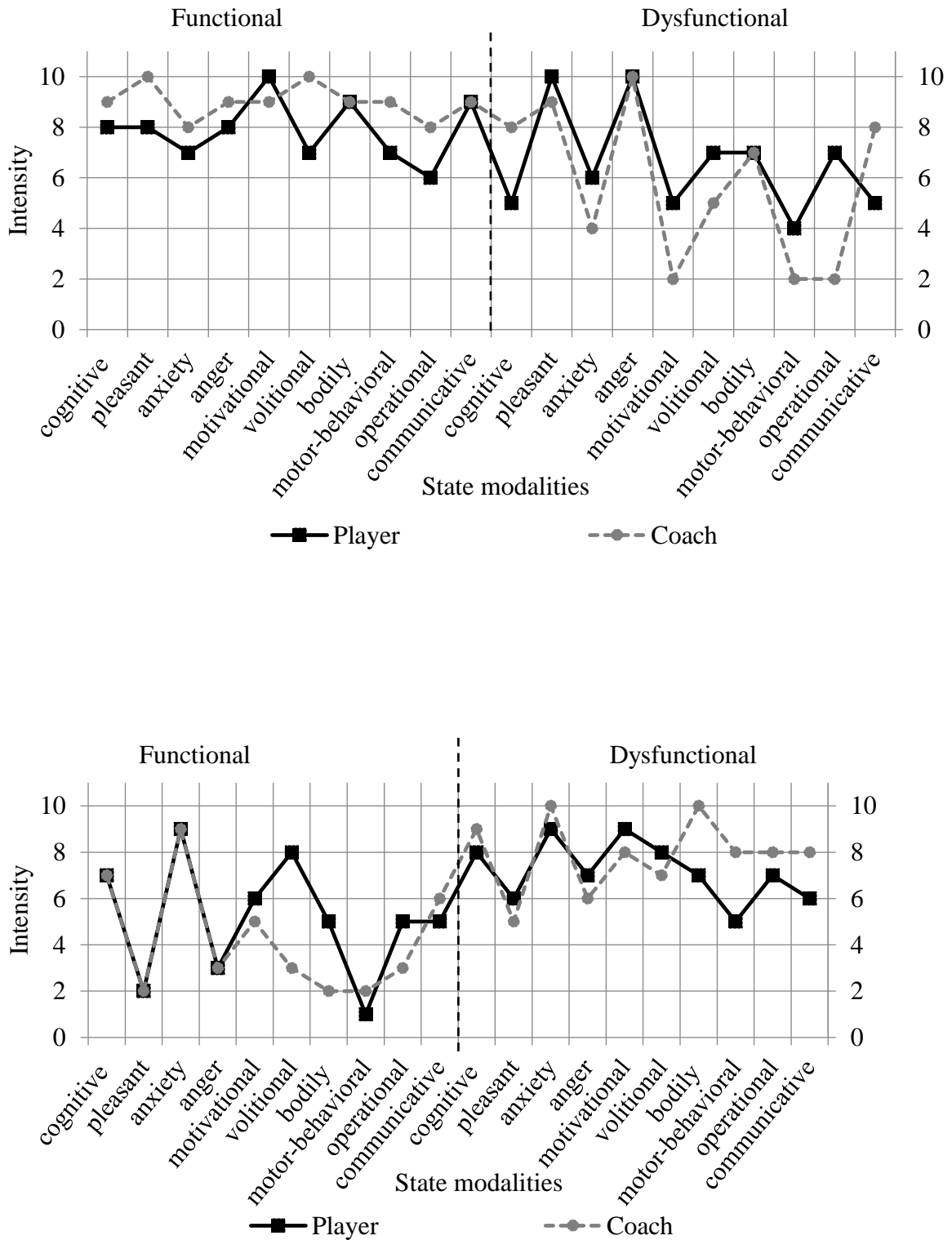


Figure 2

Individual profiles of a tennis player's psychobiosocial states before most (upper part) and least (lower part) successful performances as assessed by his coach and himself