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5 **A longitudinal examination of the influence of winning or losing with**
6 **motivational climate as a mediator on enjoyment, perceived**
7 **competence, and intention to be physically active in youth basketball**

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22 **A longitudinal examination of the influence of winning or losing with**
23 **motivational climate as a mediator on enjoyment, perceived**
24 **competence, and intention to be physically active in youth basketball**

25 *Background:* In basketball, children's main reason for playing is to have fun,
26 whereas outcomes such as skill acquisition and long-term development are often
27 perceived by adults as the main motive for children's engagement in sport.
28 However, no studies have yet examined whether the game outcome could
29 influence motivational variables longitudinally over the course of a season. The
30 novelty of the present study resides in the longitudinal exploration, the multilevel
31 approach, and the analysis of motivational climate as a mediator variable between
32 game outcome and enjoyment, perceived competence, and intention to be
33 physically active.

34 *Purpose:* The purpose of this study was to analyze whether under-12 basketball
35 players' who won versus lost games had different perceptions of their enjoyment,
36 perceived competence, and intention to be physically active throughout a season,
37 considering motivational climate as a mediator.

38 *Method:* The participants were 94 boys and two girls from eight basketball clubs
39 ($M_{age} = 9.72$ years, $SD = 1.70$ years, age range = 9-11 years). The study followed
40 a six months longitudinal design. The independent variable was the game
41 outcome (win-loss). The dependent variables were enjoyment, perceived
42 competence, and intention to be physically active. Motivational climate was a
43 mediator variable. Data were collected at the end of each of the 56 games
44 throughout 14 game days over a basketball formal season. Longitudinal
45 multilevel regression analysis was conducted within player-level and between
46 player-level with the repeated measures representing the game-to-game
47 variability.

48 *Results:* We found that at the within player level, motivational climate mediated
49 the effect of game outcome as follows. On game days, when the game is won,
50 players perceive the climate as more ego-related, which in turn reduced
51 enjoyment and increased perceived competence. On game days, when the game
52 is lost, players perceive the climate as more task-related, which in turn increased
53 enjoyment, perceived competence, and intention to be physically active.

54 *Conclusion:* Game outcomes did not directly affect players' feelings, but
55 motivational climate mediated the effect between game outcomes and
56 motivational elements within players throughout a season. This study shows that

57 the competitive nature of sport is not a deterrent to youth positive experiences
58 provided adults minimize the emphasis of game outcomes over personal factors
59 such as competence and enjoyment, through motivational climate.

60 Keywords: sport pedagogy; athlete development; game outcome; motivation;
61 youth sport; positive experiences

62 One of the main aims of youth sport is to promote an active lifestyle that can be
63 sustained throughout development. In doing so, sport pedagogy research focuses on the
64 variables that are promoting short and long term participation (Galatti et al. 2016).
65 Under this perspective, competition and the results of competitive contests constitute
66 one of these variables that affect youth engagement and young athletes' motivation in
67 sport (McCalpin, Evans, and Côté 2017). In fact, game outcomes represent an important
68 factor that has been positively associated with athletes' experience and coaching
69 effectiveness (Horn 2008). Some studies suggest that coaches may prioritize the result
70 of the game (e.g., winning) due to social pressure from clubs, parents, or peers often at
71 the cost of long-term athletes' engagement (Galatti et al. 2016; Logan, Cuff, and
72 Council on Sports Medicine and Fitness 2019). Nevertheless, it is well documented that
73 adults and youth motivation to be involved in sport are not always aligned (Vazou 2010;
74 Wall et al. 2020). More specifically, in basketball, children's main reason for playing is
75 to have fun, whereas outcomes such as skill acquisition and long-term success are
76 perceived by adults as the main motive for children's engagement in sport (DiFiori et al.
77 2018; Visek et al. 2015). Considering that basketball is one of the most practiced sport
78 worldwide, the purpose of this study was to analyze whether under-12 basketball
79 players' who won versus lost games had different perceptions of their enjoyment,
80 perceived competence, and intention to be physically active throughout a season,
81 considering motivational climate as a mediator.

82 According to the achievement goal theory (AGT), motivation encompasses
83 either a task or ego climate (Nicholls 1984). When a task climate is more prominent,
84 players are focused on their own learning and when ego climate is more prominent,
85 players are centered on winning and comparing themselves to others (Boixadós et al.
86 2004; Van Puyenbroeck, Stouten, and Vande Broek 2019). Generally, studies show that

87 players' perception of task climate is positively associated with quality experiences in
88 sport and intrinsic motivational elements, that include enjoyment, perceived competence
89 and intention to be physically active (Alesi et al. 2019; Gjesdal, Appleton, and
90 Ommundsen 2017; Harwood et al. 2015; Nicholls 1984). On the contrary, players'
91 perception of ego climate is related with the demonstration of ability, frustration,
92 competition, and negative motivational outcomes (García-González et al. 2019; Gjesdal
93 et al. 2019; Nicholls 1984).

94 At the level of the person, self-determination theory (Deci and Ryan 1985) states
95 that continued engagement in an activity depends on extrinsic or intrinsic motives.
96 While extrinsic motivation refers to a drive that results from external elements, intrinsic
97 motivation refers to engagement motives that are inherently interesting or enjoyable.
98 Enjoyment and perceived competence are the most powerful variables that positively
99 influence intrinsic motivation (McAuley, Duncan, and Tammen 1989; Deci and Ryan
100 1985). On the one hand, enjoyment is the perception of pleasure and satisfaction that
101 someone have with an activity. It involves a cognitive evaluation of personal, social-
102 environmental and cultural factors (Deci and Ryan 1985). On the other hand, perceived
103 competence refers to how skilled a person perceives oneself to perform in a particular
104 situation. It is a consequence of social comparison, outcomes, and internal factors (Deci
105 and Ryan 1985). In order to provide a positive experience in sport, enjoyment and
106 perceived competence are key motivational elements. Children who enjoy and show
107 high perceived competence doing sport present great disposition to continue practicing
108 sport (Hopple 2018; Sánchez-Oliva et al. 2020; Witt and Dangi 2018). Furthermore,
109 enjoyment and perceived competence are motivational elements negatively correlated
110 with dropping out (Corr, McSharry, and Murtagh 2018; Gardner, Magee, and Vella
111 2017).

112 Following AGT and self-determination theories, the motivational climate
113 generated by adults, particularly coaches and parents, plays an important role in whether
114 youth have a positive experience in sport (Curran et al. 2015). More particularly, how
115 adults influence young people's beliefs about the outcome of a competitive event will
116 influence their perceptions of enjoyment and competence (Miller, Roberts, and
117 Ommundsen 2004). In other words, the outcomes of a game greatly influence the
118 motivational climate promoted by coaches and can affect youth athletes differently. As
119 such, motivational climate can be considered as a mediator between game outcomes
120 (win/loss) and young athletes' perception of enjoyment, perceived competence, and
121 intention to be physically active (Cumming et al. 2007). In fact, motivational climate
122 has been previously used as a mediator variable to better understand the motivational
123 elements that impact sport participation (e.g., Madjar, North, and Karakus 2019; Van
124 Puyenbroeck, Stouten, and Vande Broek 2017).

125 Few studies have obtained positive associations between winning and positive
126 emotions, enjoyment and intention to be physically active (Baker-Ward, Eaton, and
127 Banks 2005; Bakker et al. 2011). Nevertheless, more studies showed no relation
128 between winning and fun, enjoyment, perceived competence, and motivational climate
129 (Brustad 1988; Breiger et al. 2015; Cumming et al. 2007; Wankel and Sefton 1989). In
130 a study that explores the effect of winning or losing on emotions, Baker-Ward et al.
131 (2005) interviewed 9-12-years-old soccer players at the end of a season and showed that
132 winners retrospectively recalled more positive emotions than losers. Similarly, Bakker
133 et al. (2011) reported higher enjoyment and intention to be physically active in the
134 future when 14-18-years-old soccer players won games. In a study conducted more than
135 30 years ago, Wankel and Sefton (1989) showed that personal achievement was more
136 important than winning as a predictor of fun in ice hockey players (7-15 years old).

137 Around the same time, Brustad (1988) showed that in basketball, winning did not
138 predict enjoyment and perceived competence before a practice session of 9-13-years-old
139 players. Similarly, Cumming et al. (2007) reported that winning did not correlate with
140 the motivational climate and enjoyment, after a recreational basketball season (10-15
141 years). In an extension of the previous study, Breiger et al. (2015) confirmed the non
142 correlation between winning and motivational climate adding that winning exhibited
143 stronger relations to attitudes for boys than girls. Although these studies show no
144 association between winning and motivational indicators, the design did not allow the
145 authors to examine the season-long effect of winning and losing on the sport experience
146 of young athletes such as motivational climate, enjoyment, and competence (Baker-
147 Ward et al. 2005; Bakker et al. 2011; Breiger et al. 2015; Brustad 1988; Cumming et al.
148 2007; Wankel and Sefton 1989).

149 Although previous studies analyzed the relationship between game outcomes
150 and motivational elements, none of them explored their association, following a
151 longitudinal design at intra- and inter-player level. Consequently, the present study was
152 guided by two research question: To what degree can game-to-game outcome variability
153 throughout a season explain players' enjoyment, perceived competence and intention to
154 be physically active? What is the effect of motivational climate as mediator variable
155 between game outcome and enjoyment, perceived competence and intention to be
156 physically active?

157 Considering the longitudinal design, we followed a multilevel modelling as a
158 method of choice to analyze nested data structures that determine the game to game
159 variance within player and between player variance (Hox, Moerbeek, and Van de
160 Schoot 2017; Peugh and Enders 2005). Following the multi-level techniques presented
161 by Krijgsman et al. (2019), we considered this a more exploratory analyses, addressing

162 the research question at the intra-individual level (i.e., within players from game-to-
163 game) and inter-individual (i.e., between players from game-to-game). In practical
164 terms, this analysis allowed us to know whether some players were more easily
165 influenced by game outcomes than other. Similarly, this technique, allowed us to shed
166 light on whether or not there were differences between players regarding how game
167 outcomes influenced them (Delrue et al. 2017).

168 Based on cross-sectional studies conducted in youth basketball (e.g., Breiger et
169 al. 2015; Brustad 1988; Cumming et al. 2007), we expected that variability in game
170 outcomes throughout a season would explain the positive variability in players'
171 experiences of enjoyment, perceived competence, and intention to be physically active
172 on a game to game basis (Baker-Ward et al. 2005; Bakker et al. 2011; Wankel and
173 Sefton 1989). From previous studies, we hypothesized that motivational climate could
174 mediate between game outcome and motivational elements (experiences of enjoyment,
175 perceived competence, and intention to be physically active; Madjar et al. 2019; Van
176 Puyenbroeck et al. 2017).

177 **Method**

178 ***Research design***

179 The study followed a longitudinal design to investigate differences between winning
180 and losing players in youth basketball. The independent variable was the game outcome
181 (win-loss). The dependent variables were the motivational elements: enjoyment,
182 perceived competence, and intention to be physically active. Motivational climate was a
183 mediator variable. Data were collected at the end of each of the 56 games throughout 14
184 game days over a basketball season.

185 Participants

186 Eight basketball clubs consisting of a total of 96 players took part in the study, that was
187 located in Spain. The participants' inclusion criterion was that the players participated a
188 minimum of two complete quarters in each game. The participants were 94 boys and
189 two girls ($M_{age} = 9.72$ years, $SD = 1.70$ years, age range = 9-11 years), Caucasian, from
190 moderate-to-high level socioeconomic status, educational attainment. All players had
191 been involved in basketball in an organized league for an average of 4.62 years ($SD =$
192 $.56$). The current involvement of the players consisted of 4.5 hours per week, including
193 three practice sessions and one-hour game. The players belonged to the high ability
194 level teams in their age range according to their competition levels. Each team had the
195 same coach during the season. Players' parents, coaches, and board of the basketball
196 clubs completed informed consent forms (giving right to withdraw and confidentiality),
197 and players provided their assent before the investigation. The authors University's
198 Research Ethics Committee approved the study and it was performed according to the
199 Helsinki Declaration.

200 Procedure

201 Data were collected throughout the 2012/2013 basketball formal season from November
202 to April. Each participant completed the questionnaires after each of the 14 games. All
203 games were played on 14 separate Saturdays on the same indoor court. All the teams
204 played against each other two times throughout the season. The games were played
205 following the official rules of under-12 basketball and refereed by two professional
206 referees. Each game consisted of six quarters of 8 min with a break of 1 min between
207 quarters, except between third and fourth quarters which was 5 min; two time-outs were
208 allowed in the first three quarters and another two time-outs were allowed in the last
209 three quarters. After each game, the players completed the questionnaires about

210 motivational climate, enjoyment, perceived competence, and intention to be physically
211 active. The players completed the questionnaires in the presence of one of the members
212 of the research team and in the absence of any coaching staff. The participants took
213 approximately 20 min after the game to answer the questionnaires in the same court,
214 before debriefing with the coach and showering. All players completed the
215 questionnaires after all games because the research team checked it. The information of
216 the game outcome was taken in vivo after each game. The record of won games was the
217 following: Two teams won 13 games, one team won 10 games, one team eight games,
218 three teams four games, and one team one game.

219 ***Data collection***

220 *Motivational Climate*

221 Players completed the PMCSQ-2 validated for youth players (Newton, Duda, and Yin
222 2000). This instrument has 17 items referring to the task climate (e.g., “on this team,
223 each player contributes in some important way” and “on this team, the coach makes
224 sure players improve on skills they’re not good at”; Kaiser-Meyer-Olkin = .87;
225 Bartlett’s test of sphericity = .000; Cronbach’s α = .84; McDonald’s ω = .97) and 16
226 referring to the ego climate (e.g., “on this team, the coach gets mad when a player
227 makes a mistake” and “on this team, the coach thinks only the starters contribute to the
228 success of the team”; Kaiser-Meyer-Olkin = .85; Bartlett’s test of sphericity = .000;
229 Cronbach’s α = .71; McDonald’s ω = .81). Agreement with the items was rated on a 5-
230 point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

231 *Enjoyment and Perceived Competence*

232 Players completed the enjoyment and perceived competence scale (Arias-Estero,
233 Alonso, and Yuste 2013) adapted from the physical activity enjoyment scale (McAuley
234 et al. 1989). This instrument has three enjoyment items (e.g., “I enjoyed practicing
235 basketball very much” and “I would describe this sport as very interesting”; Kaiser-
236 Meyer-Olkin = .74; Bartlett’s test of sphericity = .000; Cronbach’s α = .73; McDonald’s
237 ω = .75) and four perceived competence items (e.g., “after practicing basketball, I felt
238 pretty competent” and “I think I am pretty good practicing basketball”; Kaiser-Meyer-
239 Olkin = .83; Bartlett’s test of sphericity = .000; Cronbach’s α = .94; McDonald’s ω =
240 .83). Agreement with the items was rated on a 5-point Likert-type scale, ranging from 1
241 (*strongly disagree*) to 5 (*strongly agree*).

242 *Intention to be Physically Active*

243 Players completed the intentionality of being physically active scale (Arias-Estero,
244 Castejón, and Yuste 2013) adapted from the original version (Hein, Müür, and Koka
245 2004). This instrument has five items referring to the intention to continue performing
246 basketball in the future (e.g., “after I finish the present season, I would like to be
247 physically active practicing basketball” and “outside of the games, I like to practice
248 basketball”; Kaiser-Meyer-Olkin = .73; Bartlett’s test of sphericity = .000; Cronbach’s α
249 = .75; McDonald’s ω = .70). Agreement with the items was rated on a 5-point Likert-
250 type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

251 *Data analysis*

252 Statistical analysis of the motivational climate, enjoyment, perceived competence, and
253 intention to be physically active variables was conducted using SPSS v. 25.0 for
254 Windows (SPSS, Inc., Chicago, IL). We determined the normality of the data through

255 the Kolmogorov-Smirnov test, finding that the data were parametric ($p > .05$).
256 Descriptive analyses were calculated for players of winning and losing teams by means
257 and standard deviations. We examined whether there were significant differences for
258 each variable on game days between players of winning teams and players of losing
259 teams using univariate effect of variance ANOVA. Given the nested structure of the
260 data (as the repeated-measures were nested within the players), we tested our
261 hypotheses through multilevel modeling (Hox et al. 2017). A two-level hierarchical
262 linear model was used to assess the impact of game outcome on players' enjoyment,
263 perceived competence and intention to be physically active in a season, while mediating
264 for motivational climate. We used multilevel regression analysis with two-levels (within
265 player-level and between player-level), with the repeated measures representing the
266 game-to-game variability (game day nested within and between players) and two
267 models as follow (Krijgsman et al. 2019). First, we calculated M0 as the variance of the
268 dependent variables throughout the season. M0 is the intercept-only model that was
269 used to compare with other models (Hox et al. 2017). Second in M1, game outcome was
270 entered to determine the game to game variance within player and between player
271 variance (dummy coded: 0 for players of losing teams and 1 for players of winning
272 teams). Finally, we analyzed the mediational effect of motivational climate between
273 game outcome and enjoyment, perceived competence, and intention to be physically
274 active, using Rockwood's MLmed macro (Rockwood and Hayes in press).

275 **Results**

276 Descriptive statistics are presented in Table 1. Independent of whether players had lost
277 or won the game, they showed low ego climate values and high levels of task climate,
278 enjoyment, perceived competence, and intention to be physically active. The regression
279 analyses show that ego climate and task climate were related negatively (Table 2).

280 Perceived competence and intention to be physically active were related positively.
281 Percentages of variance for ego climate, task climate, enjoyment, perceived competence
282 and intention to be physically active were similar at within player-level and between
283 player-level. In general, we found weak game-to-game variability in the degree to
284 which players perceived ego climate, task climate, enjoyment, perceived competence
285 and intention to be physically active (see the percentage of variance within and between
286 player level, Table 2).

287 Adding the game outcome (M1, Table 3), no associations were found between
288 game outcome and all the variables at within and between player-level. We found that at
289 within player level, motivational climate mediated the effect of game outcome as
290 follows (Table 4, Figure 1). Ego climate negatively mediated the relationship between
291 game outcome and enjoyment ($Z = -2.11, p = .035$) and positively mediated the
292 relationship between game outcome and perceived competence ($Z = 2.36, p = .018$). It
293 means that on game days, when the game is won, players were more likely to perceive
294 the climate as more ego-related, which in turn reduced enjoyment and increased
295 perceived competence. Task climate positively mediated the relationship between game
296 outcome and enjoyment ($Z = 2.58, p = .009$), perceived competence ($Z = 2.65, p = .008$)
297 and intention to be physically active ($Z = 2.59, p = .010$). It means that on game days,
298 when the game is won, players less strongly experienced the climate as task related,
299 which in turn increased enjoyment, perceived competence, and intention to be
300 physically active. No mediated effect were found regarding motivational climate at
301 between player-level.

302 **Discussion**

303 The objective of this study was to analyze whether under-12 basketball players' who
304 won versus lost games had different perceptions of their enjoyment, perceived

305 competence, and intention to be physically active throughout a season, considering
306 motivational climate as a mediator. Given that the goal of the study was to examine the
307 longitudinal changes over time, we used multilevel analysis. The intra- and inter-
308 individual approaches proved to be very valuable as confirmed by high percentages of
309 variance at the within- and between-player levels in game outcome, ego climate and
310 task climate. Overall, contrary to our expectation based on cross-sectional studies
311 conducted in youth basketball (Breiger et al. 2015; Brustad 1988; Cumming et al.
312 2007), no relations between game outcome and motivational elements (enjoyment,
313 perceived competence and intention to be physically active) were found neither at
314 within player-level nor at between player-level, without motivational climate as a
315 mediator (Baker-Ward et al. 2005; Bakker et al. 2011; Wankel and Sefton 1989).

316 As it was expected, motivational climate was a mediator variable between game
317 outcome and enjoyment, perceived competence and intention to be physically active at
318 within player-level (Cumming et al. 2007; Curran et al. 2015; Miller et al. 2004;
319 Nicholls 1984). Following AGT theory, motivational climate orientates players'
320 perceptions about the result of their performance (Nicholls, 1984). Accordingly, Curran
321 et al. (2015) suggested that motivational climate is likely to operate as mediator of other
322 players' perceptions. As in Cumming et al. (2007), the current study supports that game
323 outcome is not a prerequisite for fostering motivational elements in youth basketball
324 because the most important predictor was the coach-created motivational climate.
325 Because of the mediator effect of motivational climate, identified in the present work,
326 the previous positive associations made in former studies between winning and
327 motivational elements, such as perceived competence, enjoyment and intention to be
328 physically active, should be interpreted with caution (Baker-Ward et al. 2005; Bakker et
329 al. 2011; Wankel and Sefton 1989).

330 The fact that task climate increased when losing and ego climate increased when
331 winning could be explained by how adults and public reactions interact to influence
332 young people's beliefs regarding the outcome of a competition (Miller et al. 2004). For
333 instance, effective coaches are more likely to favour players' personal development
334 when losing, but children are under the influence of public accolades and praises when
335 winning. Children who lack the differentiated conception of how their effort affect the
336 outcome of a game may be overly sensitive to coaches' and public reaction following
337 the outcome of a game (Kliethermes et al. 2020) and, therefore, directly attribute their
338 success, or lack of, to the final score of the game because of the adults' created
339 motivational climate. Therefore, the final score of the games did not influence players'
340 motivational elements directly (enjoyment, perceived competence and intention to be
341 physically active) and consequently appears to have limited consequences on players'
342 engagement over time.

343 Thus, the present study adds to the existing literature in at least three ways. First,
344 rather than examining the independent associations between game outcomes and
345 players' motivational climate, we explored the effect of motivational climate as a
346 mediator variable between game outcomes and enjoyment, perceived competence and
347 intention to be physically active. Second, whereas previous studies examined the
348 proposed associations at the between-player level, we examined these relationships as
349 processes at both the between- and within-player level. Finally, we followed a
350 longitudinal design used to examine the effect of winning and losing in youth sport.

351 The results of the present study should be interpreted with caution because of the
352 players' high level of specialization and ability, the self-reported nature of motivational
353 climate, the lack of information on how coaches interacted with players after winning or
354 losing, the team variation with regard to game outcomes, and the absence of control for

355 the team level given that only eight teams were involved. In addition, given that almost
356 all the participants in the current study were male basketball players, caution is
357 warranted when generalizing the results to non-basketball contexts and females. Future
358 studies should examine how age and gender may influence different motivational
359 outcomes. Additionally, future studies should explore players' and coaches' experiences
360 for explaining their perceptions regarding motivational climate, enjoyment, perceived
361 competence, intention to be physically active and game outcomes considering their
362 interests for playing.

363 *Practical implications*

364 In practical terms, the results of the present study suggest that youth were not overly
365 affected by the results of each game day but their perceptions were mediated by
366 motivational climate in which players did not compare themselves to each other
367 (Boixadós et al. 2004). On the contrary, comparing between players, neither game
368 outcome nor motivational climate mediating effect affected motivational elements.
369 However, it is important to mention that the leagues and the teams were evenly matched
370 and that the competitive structure of the league did not advantage specific teams.
371 Therefore, the competitive structure of the league and perhaps the coaches in their
372 interactions with the players, were variables of the sport environment that potentially
373 minimized the negative factors associated with game outcomes (Almagro et al. 2015;
374 García-González et al. 2019). The longitudinal data collected in the present study show
375 that it is still possible to keep scores during games without negatively affecting players'
376 perception of motivational elements. Coaches' and parents' role seems to be crucial to
377 create a motivational climate that minimize the effect of game outcome. Sport leagues
378 need to be engineered so that all players have opportunities to win and lose and that the
379 outcome of a game does not affect a player status within a league (McCalpin et al.

380 2017). Furthermore, to avoid the potential negative consequences associated with
381 losing, coaches need to connect with players individually as people, model pro-social
382 behaviors and express confidence in their athletes (Kliethermes et al. 2020; Turnnidge
383 and Côté 2018).

384 **Conclusion**

385 In conclusion, players experienced positive feelings regarding their participation
386 independent of whether they had lost or won the game. Game outcomes did not directly
387 affect players' feelings, but motivational climate mediated the effect between game
388 outcomes and motivational elements within players throughout a season. Overall, this
389 study shows that the competitive nature of sport is not a deterrent to youth positive
390 experiences provided adults minimize the emphasis of game outcomes over personal
391 factors such as competence and enjoyment, through motivational climate.

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- 560

561 Table 1. Descriptive statistics and significant differences for each variable on game days
 562 from players of winning teams and players of losing teams.

Dependent variables	Game days	Winning		Losing		<i>F</i>	<i>p</i>	ηp^2
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Ego climate	1	2.01	.53	1.89	.47	.60	.440	.01
	2	2.06	.87	1.95	.53	.25	.616	.00
	3	2.01	.68	1.76	.52	3.23	.076	.04
	4	2.05	.73	1.77	.61	3.15	.080	.04
	5	2.12	.78	1.81	.61	4.26	.043*	.05
	6	2.21	.76	1.93	.59	4.43	.038*	.05
	7	2.15	.84	2.07	.62	1.68	.198	.02
	8	2.19	.84	2.01	.65	.01	.933	.00
	9	1.98	.73	2.19	.61	3.99	.049*	.05
	10	1.88	.61	1.99	.59	.20	.656	.00
	11	1.98	.58	1.98	.69	.68	.412	.01
	12	2.01	.73	2.10	.67	2.08	.152	.02
	13	2.09	.74	1.82	.66	5.35	.023*	.06
	14	2.05	.76	1.98	.70	.29	.591	.00
Task climate	1	4.30	.57	4.34	.51	.00	.951	.00
	2	4.22	.75	4.57	.32	7.17	.009*	.08
	3	4.28	.51	4.42	.54	.94	.336	.01
	4	4.21	.66	4.47	.46	4.28	.042*	.05
	5	4.25	.59	4.39	.52	1.66	.201	.02
	6	4.29	.49	4.42	.50	1.30	.257	.02
	7	4.23	.60	4.35	.52	2.84	.095	.03
	8	4.22	.76	4.31	.65	.02	.887	.00
	9	4.19	.66	4.09	.67	5.88	.018*	.07
	10	4.51	.46	4.11	.57	8.89	.004*	.10
	11	4.43	.52	4.31	.57	1.26	.264	.01
	12	4.18	.65	4.14	.67	2.13	.148	.03
	13	4.29	.63	4.41	.58	4.53	.036*	.05
	14	4.36	.54	4.20	.62	1.22	.272	.01
Enjoyment	1	4.76	.50	4.90	.39	1.41	.238	.02
	2	4.88	.44	4.87	.35	.02	.875	.00
	3	4.85	.56	4.95	.14	.89	.347	.01
	4	4.82	.65	4.80	.58	.02	.885	.00
	5	4.82	.43	4.86	.44	.09	.763	.00
	6	4.92	.31	4.91	.28	.00	.971	.00
	7	4.81	.37	4.80	.52	.07	.795	.00
	8	4.78	.61	4.82	.50	.02	.877	.00
	9	4.81	.37	4.90	.32	1.21	.273	.01
	10	4.92	.25	4.93	.20	.19	.661	.00
	11	4.93	.29	4.91	.26	1.04	.311	.01
	12	4.83	.47	4.92	.27	.00	.960	.00
	13	4.95	.22	4.95	.16	2.11	.150	.03
	14	4.95	.19	4.96	.16	.17	.678	.00
Perceived competence	1	3.93	1.08	3.83	1.16	.34	.562	.00
	2	3.77	.91	4.04	.95	1.88	.175	.02

	3	3.91	.94	3.82	1.12	.81	.369	.01
	4	4.04	.95	3.93	1.20	.12	.728	.00
	5	3.96	1.01	3.82	1.17	.27	.604	.00
	6	4.09	.89	4.26	.94	.11	.742	.00
	7	4.04	.89	3.89	1.25	.56	.455	.01
	8	3.96	.97	3.88	1.5	2.11	.150	.03
	9	4.21	1.02	4.04	1.25	.27	.603	.00
	10	3.93	1.05	4.17	1.13	.07	.788	.00
	11	4.21	.82	4.44	.89	5.71	.019*	.06
	12	3.78	1.20	4.13	1.22	.00	.968	.00
	13	4.43	.83	4.37	.96	.46	.501	.01
	14	4.13	1.02	4.28	1.03	.37	.543	.00
Intention to be physically active	1	4.50	.60	4.67	.46	2.08	.153	.03
	2	4.43	.68	4.68	.38	.34	.561	.00
	3	4.55	.61	4.73	.36	1.18	.281	.01
	4	4.61	.69	4.53	.66	.23	.634	.00
	5	4.52	.54	4.64	.54	1.21	.274	.01
	6	4.52	.62	4.70	.42	2.14	.147	.03
	7	4.65	.49	4.37	.80	3.85	.053	.04
	8	4.46	.68	4.58	.59	.06	.801	.00
	9	4.69	.46	4.55	.63	1.99	.162	.02
	10	4.73	.38	4.70	.51	.04	.844	.00
	11	4.78	.34	4.83	.33	5.43	.022*	.06
	12	4.59	.60	4.64	.57	.47	.495	.01
	13	4.60	.79	4.85	.29	5.39	.023*	.06
	14	4.74	.40	4.83	.28	.34	.559	.00

563 *Note.* *M*: mean, *SD*: standard deviation. * $p < .05$, ** $p < .001$.

564 Table 2. Mean scores, standard deviations and regressions between measured variables.

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Game outcome	.52	.50	-					
2. Ego climate	2.00	.68	.24*	-				
3. Task climate	4.30	.59	.02	-.52**	-			
4. Enjoyment	4.88	.38	-.01	-.21**	.08*	-		
5. Perceived competence	4.05	1.04	-.01	.16**	.09**	.03**	-	
6. Intention to be physically active	4.64	.54	-.10	-.08*	.10*	.34**	.62**	-
% variance within player-level			63	54	53	56	57	57
% variance between player- level			37	46	47	44	43	43

565 *Note.* *M*: mean, *SD*: standard deviation, * $p < .05$, ** $p < .001$. Winning and losing were
566 dummy coded: 0 for players of losing teams and 1 for players of winning teams.

567 Table 3. Players' enjoyment, perceived competence and intention to be physically active: Variance component model (M0) and conditional
 568 model including game outcome within player and between player (M1).

Parameter	Ego climate		Task climate		Enjoyment		Perceived competence		Intention to be physically active	
	M0a	M1a	M0b	M1b	M0c	M1c	M0d	M1d	M0e	M1e
	$\beta(SE)$	$\beta(SE)$	$\beta(SE)$	$\beta(SE)$	$\beta(SE)$	$\beta(SE)$	$\beta(SE)$	$\beta(SE)$	$\beta(SE)$	$\beta(SE)$
Fixed part										
Intercept	2.00(.02)**	1.94(.03)**	4.31(.02)*	4.33(.03)**	4.88(.13)*	4.89(.02)**	4.06(.04)**	4.07(.05)**	4.64(.02)*	4.67(.03)**
<i>Game outcome</i>										
Within										
player- level		.09(.08)		-.14(.08)		-.00(.03)		-.02(.07)		.01(.38)

Between

player-	.11(.04)*	-.05(.35)	-.04(.07)	-.10(.32)	-16(.18)
level					

Random part

 σ^2 Within

player-	.22(.01)**	.26(.06)**	.12(.00)**	.49(.02)**	.20(.01)**
level					

 σ^2

Between

player-	.43(.02)**	.31(.01)**	.14(.00)**	.97(.04)**	.26(.01)**
level					

569 *Note.* * $p < .05$, ** $p < .001$. Coefficients shown are unstandardized path coefficients (β) with standard errors (SE) reported between brackets.

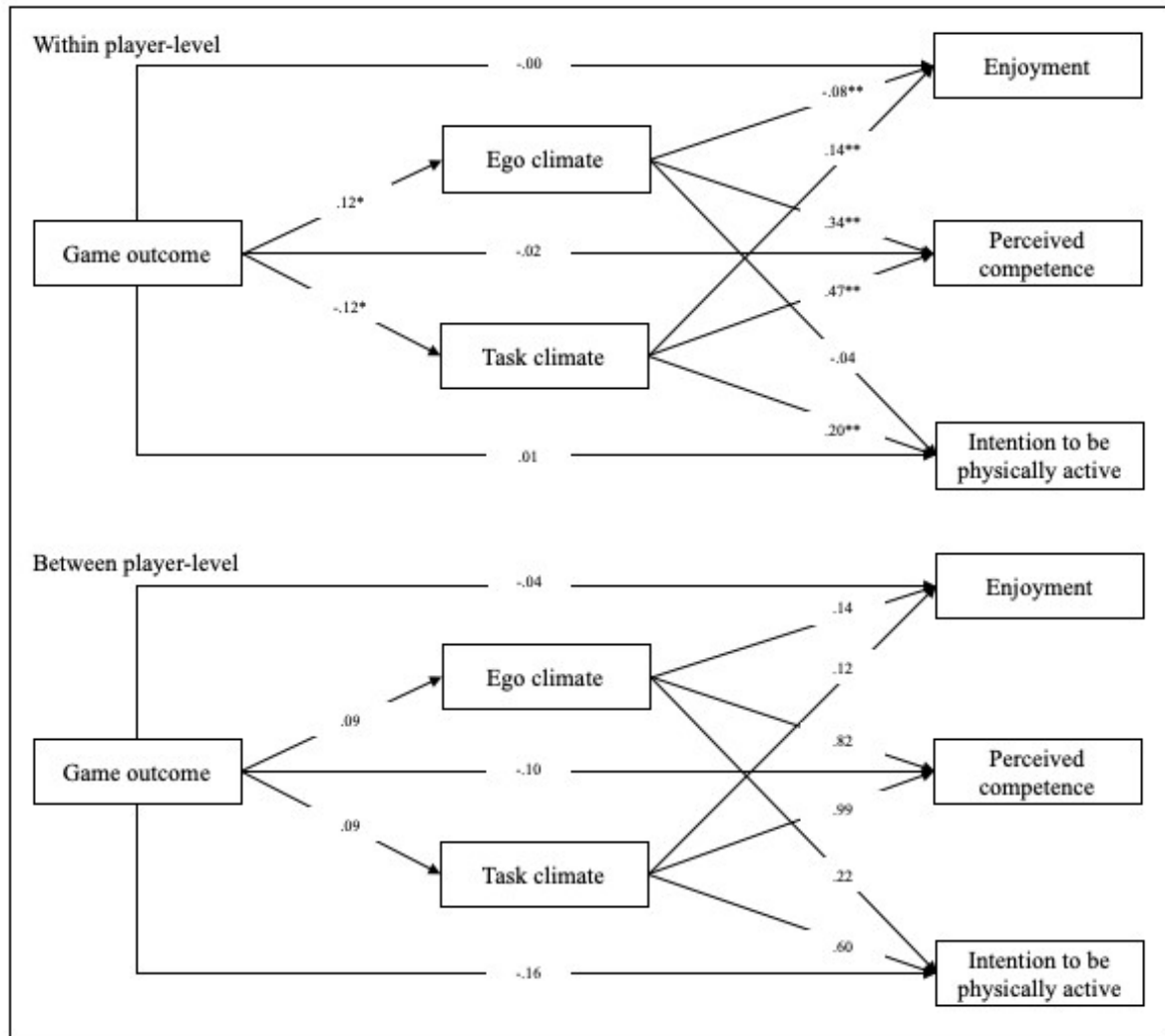
570 Winning and losing were dummy coded: 0 for players of losing teams and 1 for players of winning teams.

571 Table 4. Players' motivational climate mediation between game outcome and enjoyment,
 572 perceived competence and intention to be physically active.

Game outcome and mediator	<i>Effect(SE)</i>	<i>t</i>	<i>p</i>	<i>CI</i>
<i>Within player-level</i>				
<i>Relationship between game outcome and ego climate</i>	.12(.04)	2.54	.011*	[.02, .22]
Relationship between game outcome and enjoyment mediated by ego climate	-.08(.02)	-4.10	.000**	[-.11, .04]
Relationship between game outcome and perceived competence mediated by ego climate	.34(.05)	6.91	.000**	[.24, .44]
Relationship between game outcome and intention to be physically active mediated by ego climate	-.04(.03)	-1.74	.082	[-.09, .00]
<i>Relationship between game outcome and task climate</i>	-.12(.04)	-2.83	.005*	[-.20, -.03]
Relationship between game outcome and enjoyment mediated by task climate	.14(.02)	6.65	.000**	[.10, .19]
Relationship between game outcome and perceived competence mediated by task climate	.47(.06)	8.07	.000**	[.35, .58]
Relationship between game outcome and intention to be physically active mediated by task climate	.20(.03)	6.79	.000**	[.14, .26]

Between player-level				
<i>Relationship between game outcome and ego climate</i>	.09(.26)	.36	.729	[-.55, .74]
Relationship between game outcome and enjoyment mediated by ego climate	.14(.15)	.91	.414	[-.28, .55]
Relationship between game outcome and perceived competence mediated by ego climate	.82(.64)	1.29	.266	[-.94, 2.59]
Relationship between game outcome and intention to be physically active mediated by ego climate	.22(.36)	.61	.570	[-.79, 1.24]
<i>Relationship between game outcome and task climate</i>	.09(.27)	.32	.760	[-.58, .76]
Relationship between game outcome and enjoyment mediated by task climate	.12(.15)	.82	.453	[-.27, .52]
Relationship between game outcome and perceived competence mediated by task climate	.99(.61)	1.61	.179	[-.69, 2.68]
Relationship between game outcome and intention to be physically active mediated by task climate	.60(.35)	1.70	.163	[-.37, 1.56]

573 *Note.* SE: standard error. * $p < .05$, ** $p < .001$. CI: confidence interval.



574

575 Figure 1. Multilevel mediation analysis. Players' motivational climate mediation between
 576 game outcome and enjoyment, perceived competence and intention to be physically active