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Social climate profiles in adolescent sports: Associations with enjoyment and intention to continue

Lauren Gardner

University of Wollongong, lag994@uowmail.edu.au

Christopher A. Magee

University of Wollongong, cmagee@uow.edu.au

Stewart A. Vella

University of Wollongong, stvella@uow.edu.au

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Abstract

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Keywords

sports, associations, enjoyment, intention, continue, climate, adolescent, profiles, social

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Abstract

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This study explored whether adolescent sports participants' perceptions of the social climate fall into distinct profiles, and whether these profiles are related to enjoyment and intention to continue. A Latent Profile Analysis using 313 Australian sports participants ($M_{age}=13.03$ years) revealed four distinct profiles: positive social climate (45.1%), diminished social climate (19.8%), positive coach relationship quality (19.8%), and positive friendship quality (15.3%). Individuals within the positive social climate and the positive coach relationship quality profiles reported relatively higher levels of enjoyment and intention to continue than individuals in the diminished social climate and the positive friendship quality profiles. Indirect path analyses found the social climate profiles were linked with intention to continue through enjoyment. Results highlight the value of investigating multiple dimensions of the social climate and suggest that the coach may be of particular importance in this age group. Findings have implications for understanding youth sports participation and preventing dropout.

15 Social Climate Profiles in Adolescent Sports: Associations with Enjoyment and Intention to

16 Continue

17 Understanding how aspects of the social climate – defined by the influence of key
18 social figures (namely parents, coaches, and peers) – influence sports participation is valuable
19 given that sports participation during childhood and adolescence has consistently been linked
20 with positive health outcomes (Eime, Young, Harvey, Charity, & Payne, 2013; Ntoumanis &
21 Biddle, 1999). For example, sports participation has been linked with a range of positive
22 physical and psychosocial health outcomes including reduced rates of overweight and
23 obesity, improved social skills, resilience, greater self-esteem, improved emotional
24 regulation, fewer mental health problems, and less problem behaviors (Eime et al., 2013;
25 Hebert, Møller, Andersen, & Wedderkopp, 2015; Janssen & Leblanc, 2010). Notably, the
26 psychosocial health benefits associated with sports participation surpass those attributable to
27 unstructured physical activity alone (Eime et al., 2013; Vella, Cliff, Magee, & Okely, 2015).
28 Additionally, research shows that sports participants experience less psychological
29 difficulties and greater health-related quality of life compared to individuals who drop out or
30 do not participate in sport (Vella, Cliff, Magee, & Okely, 2014; Vella et al., 2015). The
31 purpose of the current study is to investigate how individual differences in perceptions of key
32 social relationships are associated with youth sports participation.

33 **The Social Climate and Adolescent Sport**

34 Parents represent a key component of the social climate as they play a vital role in
35 early sports participation where they are responsible for introducing children to their chosen
36 sport and providing ongoing support (Côté, 1999; Fredricks & Eccles, 2005). Parental
37 support can include tangible support (e.g., financial costs and transport), socio-emotional
38 support (e.g., encouragement and aiding understanding), informational support (e.g.,
39 explaining the rules), and companionship (e.g., watching sports events) (Côté, 1999; Côte &

40 Hay, 2002). Parental support has been linked with a range of important psychological and
41 behavioral outcomes in youth sports. For example, children who perceive their parents to be
42 more supportive tend to experience greater enjoyment, intrinsic motivation, and are more
43 likely to continue participating in sport (Atkins, Johnson, Force, & Petrie, 2013; Sheridan,
44 Coffee, & Lavalley, 2014). However, parents can also have negative influences. For example,
45 parental pressure is one of the most common interpersonal reasons for youth sports dropout
46 (Crane & Temple, 2015). Therefore, gaining an understanding of perceptions of parental
47 support could provide valuable information in regards to adolescent sports participation and
48 dropout.

49 Coaches are often considered to play a similar role to parents given their position of
50 authority and responsibility to provide support. However, the role of a coach is different as
51 they are also relied upon for technical instruction to aid skill development (Côté & Gilbert,
52 2009; Keegan, Spray, Harwood, & Lavalley, 2010). Positive coach-athlete relationships
53 represent a key component of the social climate because they have been linked with a number
54 of motivational outcomes including increased motivation and greater persistence in youth
55 sports (Gould, Collins, Lauer, & Chung, 2007; Riley & Smith, 2011). High quality coach-
56 athlete relationships are characterized by high perceptions of closeness (e.g., feelings such as
57 respect, trust, and appreciation), commitment (e.g., intentions to maintain the relationship),
58 complementarity (e.g., the cooperative and reciprocal behaviors), and co-orientation (e.g.,
59 perceptions about shared views and common ground) (Jowett & Ntoumanis, 2004; Jowett &
60 Poczwardowski, 2007). However, research suggests that the coach-athlete relationship is
61 commonly implicated in the decision to withdraw from youth sports (Rottensteiner,
62 Konttinen, & Laakso, 2015). Contributing factors may include coach conflict, a controlling
63 and autocratic coaching style, lack of encouragement, and an overemphasis on winning
64 (Gearity & Murray, 2011; Gould, 2007; Pelletier, Fortier, Vallerand, & Brière, 2001). It is

65 therefore important to understand the role of coaches, and more specifically the coach-athlete
66 relationship, in the context of youth sports participation and dropout.

67 Peers represent another core component of the social climate in the context of youth
68 sport. The role of peers is very different to that of parents and coaches, and has received
69 relatively less empirical attention (Keegan, Harwood, Spray, & Lavallee, 2009; Smith,
70 Ullrich-French, Walker, & Hurley, 2006). The two main dimensions of peer relationships that
71 tend to be targeted in youth sports research are peer acceptance and friendship quality (Smith
72 et al., 2006). Peer acceptance refers to popularity and liking by the larger peer group, whereas
73 friendship quality refers to having a close and reciprocated dyadic relationship (Bukowski &
74 Hoza, 1989). From a developmental perspective, Sullivan (1953) argued that the two
75 dimensions make distinct contributions yet they can also compensate for other relationship
76 shortcomings. For example, it is theorized that a close and high quality friendship may buffer
77 against the negative outcomes associated with low peer acceptance (Smith, 1999; Sullivan,
78 1953). Additionally, Ullrich-French and Smith (2006; 2009) found peer acceptance and
79 friendship quality to be uniquely and positively associated with enjoyment and continuation
80 in soccer. Therefore, given that these dimensions have distinct influences on motivational
81 outcomes in youth sport, they both need to be considered (Smith, 1999; Ullrich-French &
82 Smith, 2006). This may be particularly salient when the two facets of peer relationships are
83 functioning at different levels as they could have an interactive effect.

84 **Key Motivational Outcomes in Youth Sports**

85 Enjoyment and intention to continue are two key motivational processes that could
86 influence participation and dropout in youth sports (Balish, McLaren, Rainham, & Blanchard,
87 2014; Crane & Temple, 2015). Sports enjoyment refers to a positive emotional response
88 acquired from the sports experience (Scanlan & Simons, 1992). Enjoyment has consistently
89 been linked with continued participation, whereas lack of enjoyment is reported to be the

90 single most common reason for dropout in youth sports (Crane & Temple, 2015; Gould,
91 2007). Intentions refer to an individual's motivation and plans for future behavior (Ajzen,
92 1991) and have been shown to directly predict actual sports behaviors, including participation
93 and dropout (Balish et al., 2014). Although a number of other factors may contribute to
94 continued participation in youth sports, the consistent findings in the youth sports literature
95 linking enjoyment and intention to continue with participation suggests that the two factors
96 are particularly important to future sports participation behavior (Balish et al., 2014; Crane &
97 Temple, 2015). Furthermore, according to research using behavioral change theories such as
98 the theory of planned behavior, the self-determination theory, and achievement goal theory,
99 both factors should be considered because enjoyment can be conceptualized as an antecedent
100 of intention (Ajzen & Driver, 1992; Atkins, Johnson, Force, & Petrie, 2015; Quested et al.,
101 2013). This suggests that enjoyment could have an indirect effect on sports participation
102 through its influence on intentions to continue.

103 Although these theories suggest that components of the social climate could influence
104 sports participation via their effects on the motivational processes outlined above, few studies
105 have examined all three key figures in the social climate. Available studies have tended to
106 focus narrowly on the motivational climates created by parents, coaches, and peers (Atkins et
107 al., 2015; Chan, Lonsdale, & Fung, 2012; Sarrazin, Vallerand, Guillet, Pelletier, & Cury,
108 2002). The motivational climate refers to the perception that social agents are promoting an
109 environment for effort and learning (i.e., a task-involving climate) or emphasizing success in
110 comparison to others (i.e., an ego-involving climate) (Ames, 1992). This research indicated
111 task-involving motivational climates from parents, coaches, or peers are associated with
112 greater enjoyment and in turn greater intention to continue. That is, perceiving parent, coach,
113 and peer behaviors to be supportive and encouraging of effort and improvement, despite

114 setbacks, resulted in greater levels of enjoyment and intention to continue in sport (Atkins et
115 al., 2015).

116 However, the motivational climate is just one dimension contributing to perceptions
117 of the social climate, and research may benefit from looking at other types of relationships
118 comprising the wider social climate (Hall, Newland, Newton, Podlog, & Baucom, 2016).
119 This is because other facets of relationships may be associated with youth sports participation
120 independently. For example, studies investigating the coach created motivational climate tend
121 to focus on coach behaviors, rather than the coach-athlete relationship, and although both
122 factors share some of the explained variance in athlete outcomes, they have also been shown
123 to make unique contributions (Rottensteiner et al., 2015; Vella, Oades, & Crowe, 2013).
124 Given that factors such as parental support and the coach-athlete relationship have been
125 shown to contribute to the formation of the motivational climate (Atkins et al., 2013;
126 Olympiou, Jowett, & Duda, 2008), it might be expected that perceptions of parental support,
127 coach-athlete relationship, friendship quality, and peer acceptance will influence outcomes in
128 a similar fashion to motivational climates. However, the unique differences in the types of
129 relationships may yield some important and novel findings.

130 **Social Climate Profiles**

131 Along with a dearth of research investigating the perceived influence of the social climate
132 in youth sports, previous research has not examined whether combinations of social
133 relationships are related to motivational outcomes. Instead, existing studies have tended to
134 examine the influence of parents, coaches, and peers on motivational outcomes
135 independently. This overlooks the potential co-occurrence of relationships with parents,
136 coaches, and peers, the nature of which could considerably vary between individuals and
137 could have important implications for motivation in sport.

138 Although some studies have attempted to look at combinations of relationships in youth
139 sports (e.g., Smith et al., 2006; Ullrich-French & Smith, 2006), these investigations only
140 included elements of peer and/or parental relationships. Nevertheless, this research has shown
141 that the effects of social relationships are not isolated and they can influence sports
142 motivation in an additive and collective way (Ullrich-French & Smith, 2009). Additionally,
143 different relationships may fulfill both similar and different developmental needs (Furman &
144 Buhrmester, 1985), and examining combinations of relationships may provide more
145 information about the relative influence of each social figure. For example, the
146 aforementioned research by Ullrich-French and Smith (2006; 2009) found that high peer
147 acceptance and friendship quality led to a high probability of continuation even when the
148 quality of the mother relationship was low. However, a high quality mother relationship
149 predicted continuation regardless of the levels of the peer relationships. This finding may
150 suggest that parents and coaches remain the most significant social figures during childhood
151 and early adolescence, whereas peers become increasingly influential during later
152 adolescence (15-18 years) (Chan et al., 2012). Furthermore, Smith et al. (2006) created peer
153 relationship profiles which demonstrated that combinations of peer relationship perceptions
154 are salient to motivation-related variables. For example, the greatest enjoyment was reported
155 by individuals within the profile characterized by high peer acceptance and friendship quality
156 with relatively low conflict, as well as those within the profile characterized by high
157 friendship quality, peer acceptance, and conflict. In contrast, less enjoyment was reported by
158 individuals within the profile characterized by relatively low levels of each variable, as well
159 as the profile characterized by relatively low peer acceptance and conflict with average
160 friendship quality. These findings suggest that relationships with social figures are complex
161 and there is a need to further investigate how distinct profiles of social relationships are
162 associated with sports participation.

163 **Summary and Study Aims**

164 The current research adopts a person-centered approach (using latent profile analysis)
165 to investigate whether there are distinct social climate profiles reflecting the level of support
166 and quality of relationships with parents, coaches, and peers. We then investigate whether
167 these social climate profiles are associated with enjoyment and intention to continue.

168 It is hypothesized that there will be individual differences in the type and level of
169 perceived social climates across multiple sources of relationships among adolescent sports
170 participants, and that those individual differences will have implications for enjoyment and
171 intention to continue. Specifically, we expect a profile characterized by more positive
172 perceptions of relationships with parents, coaches, and peers will be associated with greater
173 enjoyment and intention to continue, whereas a profile characterized by less positive
174 perceptions of relationships will be associated with lower enjoyment and less intention to
175 continue. These associations are expected to occur in an additive and collective fashion. It is
176 also hypothesized that certain social climate factors will interact with one another. For
177 example, given the prominent role of parents and coaches in youth sports participation and
178 enjoyment (Chan et al., 2012; Ullrich-French & Smith, 2009), profiles characterized by
179 positive perceptions of parental support and/or coach-athlete relationship quality will be
180 expected to experience high enjoyment and intention to continue even when friendship
181 quality and peer acceptance are low. Additionally, given that a high quality friendship is
182 theorized to negate the effects of low peer acceptance (Smith, 1999; Sullivan, 1953), a profile
183 characterized by high friendship quality should be associated with enjoyment and intention to
184 continue despite low levels of peer acceptance. Finally, given that enjoyment is theorized to
185 precede intention, it is expected that the social climate profiles will be linked with intention to
186 continue indirectly through enjoyment.

187 A number of variables that may confound the aforementioned relationships will be
188 controlled for in the analyses. Firstly, age will be included because the influence of key social
189 figures on motivational outcomes has been found to vary as sports participants progress
190 through childhood and adolescence. For example, parents may be most influential during
191 childhood whereas peers may become more important during later adolescence (Chan et al.,
192 2012). Gender has also been linked with varying relationships. For example, it has been
193 suggested that a high quality friendship may be more important for participation among
194 females than it is for males (Smith et al., 2006). The number of years of participation will be
195 included given that the importance of enjoyment for continued participation may vary based
196 on the stage of participation the individual is at. For example, enjoyment may be more
197 important for continued participation during the initial years than it is after a number of years
198 of participation when the individual is likely to have a greater investment in the sport (Côté,
199 Baker, & Abernethy, 2003). Lastly, the type of sport will be included given that team and
200 individual sports have been related to different psychosocial outcomes and the influence of
201 key social figures may be vary between them (Eime et al., 2013).

202 **Method**

203 **Participants and Procedures**

204 A total of 393 students (94 males, 299 females) from private high schools in the New
205 South Wales region of Australia took part in the study. The 327 students who identified as
206 regular sports participants (i.e., participated in organized sports one to three times per week
207 for at least three months over the past year) were included in the study. Data were inspected
208 for univariate outliers using boxplots which indicated the existence of outliers for each of the
209 social variables (parental support, coach-athlete relationship quality, friendship quality, and
210 peer acceptance). Data were also screened for multivariate outliers using Mahalanobis
211 distance; however, none of the cases exceeded the critical value ($p < .001$). Following the

212 removal of outliers, the remaining 313 regular sports participants (75 males, 238 females)
213 ranged from 11 to 15 years of age, with a mean age of 13.03 years ($SD = .84$). The
214 participants most commonly described their ethnic background as Oceanian ($n = 85, 27.2\%$),
215 Southern and Eastern European ($n = 81, 25.9\%$), and North-West European ($n = 45, 14.4\%$).
216 One hundred and eighty-six participants (59%) reported their main sport to be a team sport,
217 and 127 (41%) participants reported their main sport to be an individual sport. Of the 25
218 different sports that were reported, the most common team sports were soccer ($n = 62,$
219 19.8%) and netball ($n = 51, 16.3\%$), and the most common individual sports were dancing (n
220 $= 43, 13.7\%$) and swimming ($n = 26, 8.3\%$). The participants indicated that they had been
221 participating in their main sport for an average of 5.48 years ($SD = 3.03$), trained an average
222 of 2.77 days per week ($SD = 1.31$), and were most commonly participating at the basic
223 competition level ($n = 171, 54\%$). The study was approved by the institutional research ethics
224 committee. Participants completed questionnaires during their regular Physical Education
225 lesson.

226 **Measures**

227 **Enjoyment.** The Enjoyment subscale from the Sport Commitment Model (SCM;
228 Scanlan, Simons, Carpenter, Schmidt, & Keeler, 1993) was used to assess enjoyment in sport.
229 Four items (e.g., ‘Do you like playing your main sport?’) were rated on a five point scale
230 ranging from 1 (*not at all*) to 5 (*very much*). Cronbach’s alpha in the current study was $\alpha =$
231 .96, with similar levels reported in previous youth sports research (Atkins et al., 2015).

232 **Intention to continue.** To assess intention to continue, participants responded to one
233 item (‘I intend to participate in my main sport next season’) which was rated on a five-point
234 scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

235 **Perceived Parental Support in Sport.** The Perceived Parental Support Scale (PPSS;
236 Van Yperen, 1995) was used to assess sport specific perceived parental support. The scale

237 consists of four items (e.g., ‘If I have a problem, my parents will help me’) rated on a five-
238 point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Participants were
239 instructed to answer each item with respect to their main sport. The scale has demonstrated
240 validity and reliability in the youth sport context (Lafferty & Dorrell, 2006). In the present
241 study the Cronbach’s alpha coefficient was $\alpha = .78$.

242 **Perceived Friendship Quality in Sport.** Perceived friendship quality in sport was
243 assessed using the Sport Friendship Quality Scale (SFQS; Weiss & Smith, 1999). The scale
244 consists of 22 items assessing six dimensions of friendships; self-esteem enhancement and
245 supportiveness (e.g., ‘My friend gives me a second chance to perform a skill’), loyalty and
246 intimacy (e.g., ‘My friend and I stick up for each other in sports’), things in common (e.g.,
247 ‘My friend and I do similar things’), companionship and pleasant play (e.g., ‘My friend and I
248 spend time together’), conflict resolution (e.g., ‘My friend and I make up easily when we
249 have a fight’), and conflict (e.g., ‘My friend and I fight’). Participants were instructed to think
250 about their closest friend in their main team or sport and rated their responses on a five-point
251 scale ranging from 1 (*not at all true*) to 5 (*really true*). Cronbach’s alpha in the current study
252 was $\alpha = .90$.

253 **Perceived Peer Acceptance in Sport.** The Social subscale of the Self-Perception
254 Profile for Children (Harter, 1985) was used to assess peer acceptance in sport. The scale
255 consists of six items adapted to be specific to sports. Items were presented in a structured-
256 alternative format (e.g. ‘Some kids are popular in their team/sport but other kids are not very
257 popular in their team/sport’). Participants were instructed to decide which statement is most
258 like them with respect to their main sport, and then indicate whether the statement is ‘really
259 true for me’ or ‘sort of true for me’. In the present study the Cronbach’s alpha coefficient was
260 $\alpha = .82$.

261 **Coach-Athlete Relationship Quality.** The Coach-Athlete Relationship Questionnaire
262 (CART-Q; Jowett & Ntoumanis, 2004) was used to assess the participants' perceived quality
263 of the coach-athlete relationship. The questionnaire contains 11 items rated on a seven-point
264 scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Participants were instructed to
265 answer each item with respect to their coach in their main sport. The items tap into three
266 subscales: Closeness (e.g., 'I trust my coach'), Commitment (e.g., 'I feel committed to my
267 coach'), and Complementarity (e.g., 'When I am coached by my coach, I feel responsive to
268 his/her efforts'). However, as in previous research where the three subscales have been
269 shown to be highly related, a composite score of the three subscales was used to indicate an
270 overall perception of the quality of the coach-athlete relationship (Adie & Jowett, 2010;
271 Lafrenière, Jowett, Vallerand, & Carbonneau, 2011). In the current study, the correlations
272 between the three subscales ranged between .83 and .85. The CART-Q has demonstrated
273 high levels of validity and reliability (Jowett & Ntoumanis, 2004). Cronbach's alpha in the
274 current study was $\alpha = .94$.

275 **Covariates.** Participants' age, gender, number of years of participation, and type of
276 sport were included as covariates in the analyses.

277 **Design/Statistical Analysis**

278 Descriptive statistics were produced using IBM SPSS statistics software (version 21).
279 Given the different scales and number of items in each of the measures, scores for parental
280 support, coach-athlete relationship quality, friendship quality, and peer acceptance were
281 standardized into z-scores for ease of interpretation of the distinct profiles. A latent profile
282 analysis (LPA) was performed using Mplus version 7 (Muthén & Muthén, 1998-2012) to
283 identify distinct profiles of individuals based on individual differences in perceived
284 relationships with parents, coaches, and peers. The optimal number of latent profiles was
285 informed by several statistical criteria. The Akaike's Information Criteria (AIC), Bayesian

286 Information Criteria (BIC), and sample-size adjusted BIC were examined, with lower values
287 indicating a better model fit. Classification accuracy (entropy) and the size of the latent
288 profiles were also considered. Although there are no clear cut-offs for entropy, values much
289 lower than .80 should be treated with caution, since lower values indicate a lack of clear
290 separation between two or more profiles (Celeux & Soromenho, 1996). Bootstrap likelihood
291 ratio tests (BLRTs) were used to compare the fit between two consecutive models. A
292 significant BLRT result indicates that the model with k profiles (e.g., four latent profiles)
293 provides a better fit compared to a model with $k - 1$ profiles (e.g., three latent profiles). The
294 ideal number of profiles is achieved when the BLRT is no longer significant; this indicates
295 that the model with $k - 1$ latent profiles is considered optimal (Nylund, Asparouhov, &
296 Muthen, 2007). In addition to the statistical criteria, the profiles were inspected to ensure they
297 were meaningful, distinct, and not merely variations on a theme (Ram & Grimm, 2009). Age,
298 gender, number of years of participation, and type of sport were included as covariates.

299 To assess whether the profile groups differed on levels of enjoyment and intentions to
300 continue, two separate general linear models were analyzed with Bonferroni corrected post-
301 hoc pairwise comparisons. Age, gender, number of years of participation, and type of sport
302 were controlled for in the analyses.

303 Finally, an indirect path model was tested to examine whether the social climate
304 profiles were linked with intention to continue via enjoyment. The social climate profiles
305 were dummy coded with the largest profile (the positive social climate profile) functioning as
306 the reference category. Therefore, the direct (c' paths) and indirect effects (ab paths) are
307 considered relative to this group (Hayes & Preacher, 2014). The direct effect refers to the
308 association between the dependent variable (Y) and the independent variable (X) while
309 accounting for the mediator (M). The indirect effect refers to the pathway from X to Y
310 through M. A bootstrapping procedure with 10,000 resamples was used to test the relative

311 indirect effects with statistical significance determined on the basis of 95% confidence
312 intervals. Results are reported in terms of standardized (β) regression coefficients. Age,
313 gender, number of years of participation, and type of sport were specified as covariates on
314 both M (enjoyment) and Y (intention to continue) (Hayes & Preacher, 2014).

315 **Results**

316 **Descriptive Statistics**

317 The descriptive statistics for the study variables are presented in Table 1. Participants
318 perceived high levels of parental support, moderate-to-high coach-athlete relationship quality,
319 high friendship quality, moderate-to-high peer acceptance, high enjoyment and high intention
320 to continue. Bivariate Pearson's correlations revealed that all study variables were
321 significantly and positively correlated.

322 **Latent Profile Analyses**

323 The results of the LPA are presented in Table 2. The four profile model provided a
324 better model fit compared with the preceding models. The five profile model had a
325 statistically improved model fit according to the AIC and sample-size adjusted BIC; however,
326 the BLRT results indicated that the difference between the model with five profiles and the
327 model with four profiles was not significant. Additionally, the four profile model represented
328 a more conceptually sound and parsimonious solution than the five profile model which
329 separated one distinct profile into two overlapping profiles, one of which had a very small
330 sample size. Therefore, the model with four latent profiles was considered optimal in this
331 study. The average probabilities for most likely latent variable membership for the four
332 profiles ranged between .83 and .91. These profiles are illustrated in Figure 1 and the means
333 and standard deviations of social variables by profile are presented in Table 3. It is important
334 to note that the sample reported high levels of parental support, coach-athlete relationship
335 quality, friendship quality, and peer acceptance. Therefore, to facilitate the interpretation of

336 the data, the constructs and labels are discussed in relative terms and they are not intended to
337 represent the profiles in absolute terms. For example, the profile with the lowest score for
338 parental support still exhibits a score greater than the midpoint of the perceived parental
339 support scale; however, the profile has the lowest score relative to the other three profiles.
340 We therefore consider this profile to be relatively low on parental support. This technique has
341 been employed in previous studies as it is a common issue in youth sports research (Smith et
342 al., 2006).

343 The most common profile (n = 141; 45.1%) was characterized by the highest levels of
344 perceived parental support, coach-athlete relationship quality, friendship quality, and peer
345 acceptance. As a result, this profile was labeled *positive social climate*.

346 The second profile (n = 62; 19.8%) was characterized by relatively low levels of
347 parental support, coach-athlete relationship quality, friendship quality, and peer acceptance.
348 Therefore, this profile was labeled *diminished social climate*.

349 The third profile (n = 62; 19.8%) was characterized by relatively low levels of
350 parental support and peer acceptance with the most distinguishing features being the
351 relatively high levels of coach-athlete relationship quality and relatively low levels of
352 friendship quality. Therefore, this profile was labeled *positive coach relationship quality*.

353 The fourth profile (n = 48; 15.3%) was characterized by relatively low levels of
354 parental support and peer acceptance with the most distinguishing features being the
355 relatively high levels of friendship quality and relatively low levels of coach-athlete
356 relationship quality. This profile was therefore labeled *positive friendship quality*. Levels of
357 parental support and peer acceptance did not differ significantly between the positive
358 friendship quality profile and the positive coach relationship quality profile.

359 **Group Differences in Enjoyment and Intentions to Continue**

360 The profiles differed significantly in terms of enjoyment, $F(3, 312) = 24.84, p < .001,$
361 $\eta^2 = .19,$ and intention to continue, $F(3, 312) = 10.64, p < .001, \eta^2 = .09,$ when controlling for
362 age, gender, number of years of participation, and type of sport. In regards to enjoyment, the
363 Bonferroni corrected post-hoc pairwise comparisons showed that the positive social climate
364 profile ($M = 19.60, SD = 1.14$) did not significantly differ from the positive coach
365 relationship quality profile ($M = 19.23, SD = 1.41$). However, individuals in both the positive
366 social climate profile and the positive coach relationship quality profile reported significantly
367 more enjoyment than the positive friendship quality profile ($M = 17.44, SD = 3.29$) and the
368 diminished social climate profile ($M = 17.16, SD = 3.20$). The positive friendship quality
369 profile and the diminished social climate profile did not differ significantly from each other.

370 Similarly for intentions to continue, individuals in the positive social climate profile
371 ($M = 4.79, SD = .57$) and the positive coach relationship quality profile ($M = 4.58, SD = .78$)
372 reported significantly greater intention to continue than those in the diminished social climate
373 profile ($M = 4.15, SD = .96$). However, only individuals in the positive social climate profile
374 reported significantly greater intention to continue than those in the positive friendship
375 quality profile ($M = 4.37, SD = .87$).

376 **Indirect Path Analysis**

377 The model linking the three social climate profiles with intention to continue through
378 enjoyment, relative to the positive social climate profiles is shown in Figure 2. When
379 controlling for age, gender, number of years of participation, and type of sport, the
380 diminished social climate profile (a_1), the positive coach relationship quality profile (a_2), and
381 the positive friendship quality profile (a_3) were associated with relatively less enjoyment than
382 the positive social climate profile. However, only the diminished social climate profile (c'_1)
383 and the positive friendship quality profile (c'_3) had a significant direct effect on intention to
384 continue. Enjoyment was positively associated with intention to continue (b_1). Compared to

385 the positive social climate profile, the diminished social climate profile (a_1b_1), $\beta = -.18$, 95%
386 CI [-.56, -.19], the positive coach relationship quality profile (a_2b_2), $\beta = -.03$, [-.13, -.005],
387 and the positive friendship quality profile (a_3b_3), $\beta = -.14$, [-.50, -.18], were indirectly linked
388 to lower intentions via lower levels of enjoyment.

389 **Discussion**

390 To our knowledge, the current study is the first to explore whether there are individual
391 differences in the type and level of perceived social climates in adolescent sports based on
392 relationships with parents, coaches, and peers. This is important given that the social climate
393 has been strongly associated with children's involvement in youth sports, which in turn has
394 been linked with a range of positive health outcomes (Eime et al., 2013). The LPA identified
395 four distinct social climate profiles: positive social climate (45.1%), diminished social
396 climate (19.8%), positive coach relationship quality (19.8%), and positive friendship quality
397 (15.3%). The study also sought to explore whether these profiles are associated with
398 motivational outcomes including enjoyment and intention to continue in sport. Consistent
399 with expectations, individuals characterized by a positive social climate profile reported the
400 greatest enjoyment and intention to continue, whereas individuals characterized by a
401 diminished social climate profile reported relatively less enjoyment and intention to continue.
402 Interestingly, individuals in the positive coach relationship quality profile also reported
403 relatively high levels of enjoyment and intention to continue, despite lower levels of parent
404 and peer relationships; these findings may indicate that the coach plays a key role in
405 adolescent sports participation. Finally, as expected, the social climate profiles were found to
406 be indirectly linked with intentions to continue through enjoyment compared to the positive
407 social climate profile.

408 Results support previous research demonstrating that more positive perceptions of
409 relationships with parents, coaches, and peers are associated with greater enjoyment in youth

410 sports (Sánchez-Miguel, Leo, Sánchez-Oliva, Amado, & García-Calvo, 2013; Scanlan,
411 Carpenter, Lobel, & Simons, 1993; Smith et al., 2006). This is also consistent with previous
412 assertions that multiple positive social relationships will be associated with more positive
413 motivational outcomes (Ullrich-French & Smith, 2009). However, the finding that the highest
414 levels of enjoyment were also observed in the positive coach relationship quality profile
415 (characterized by relatively high levels of coach-athlete relationship quality coupled with
416 relatively low levels of friendship quality), whereas relatively less enjoyment was observed in
417 both the diminished social climate profile and the positive friendship quality profile
418 (characterized by relatively high levels of friendship quality coupled with relatively low
419 levels of friendship quality), suggests that the quality of the coach-athlete relationship may be
420 of particular importance to enjoyment in youth sports. This is consistent with previous
421 findings demonstrating that a positive coach-athlete relationship is associated with positive
422 motivational outcomes in youth sports (Gould et al., 2007; Riley & Smith, 2011;
423 Rottensteiner et al., 2015; Vella et al., 2013), and that coach support and satisfaction are
424 stronger predictors of youth sports enjoyment than peer and parental support (Scanlan,
425 Carpenter, et al., 1993).

426 The findings also suggest that perceived friendship quality, when coupled with
427 relatively low levels of coach-athlete relationship quality, parental support, and peer
428 acceptance, is of less importance to adolescent sports participants' enjoyment in this age
429 group. This is counter to previous research emphasizing the role of positive peer relationships
430 in sports enjoyment (Scanlan, Carpenter, et al., 1993; Smith et al., 2006), and our hypothesis
431 that friendship quality can buffer against the negative effects of low peer acceptance
432 (Sullivan, 1953). However, Sullivan's (1953) theory only considered the two aspects of peer
433 relationships and it is possible that the lower levels of parental support and coach-athlete
434 relationship quality may override the protective effect. Additionally, Chan et al. (2012) found

435 that age moderated the association between social influences and motivational outcomes
436 among a sample of 9 to 18 year old swimmers. Specifically, the role of peers was most
437 important for enjoyment between the ages of 15 and 18 years, whereas coaches and parents
438 were most important prior to this age. This suggests that the sports participants in the current
439 research may still be most responsive to the influence of their coach and parents, as compared
440 to their peers. However, the finding that parental support was not a salient variable in any of
441 the profiles is in line with previous research suggesting that parents are most influential
442 during the childhood years (Chan et al., 2012).

443 Additionally, the findings support the co-occurrence of social relationships but
444 highlight that individuals can experience different combinations of relationships which may
445 uniquely contribute to motivational outcomes in youth sport. Given that social figures may
446 exert different influences, it is possible that some supportive social relationships compensate
447 for a lack of support from other relationships. This is in line with previous developmental
448 theory proposing a compensatory model of social relationships (Furman & Buhrmester,
449 1985). Therefore in the current study, although this did not occur in the positive friendship
450 quality profile, the finding that the positive coach relationship quality profile maintained the
451 greatest levels of enjoyment and intention to continue, despite poorer perceptions of parent
452 and peer relationships, suggests that coach relationships serve a compensatory function in
453 youth sport. This may be because coach relationships fulfill similar needs to that which
454 parents and peers do, and therefore act as an alternative source when those relationships are
455 lacking (Wiese-Bjornstal, Lavoie, & Omli, 2009). For example, similar to parents, coaches are
456 authority figures who can fulfill the adolescents' needs for socio-emotional and informational
457 support (Côté & Hay, 2002; Keegan et al., 2010; Wiese-Bjornstal et al., 2009). Additionally,
458 coaches can provide a close dyadic relationship in the sporting context which could be
459 considered similar to the role of friendship quality in sport (Bukowski & Hoza, 1989; Wiese-

460 Bjornstal et al., 2009). Therefore, the results may not be signifying that parental support and
461 friendship quality are not important; rather, they may be highlighting the importance of the
462 coach-athlete relationship which can act as a surrogate source of these relationships. A close
463 friendship in sport alone may not be sufficient to address the needs usually fulfilled by
464 parents and/or coaches for the positive friendship quality group.

465 To our knowledge, the current study is the first to examine the link between intentions
466 to continue and the social climate based on perceptions of relationships with all three social
467 figures. Given that intentions are considered to be closely linked with actual behaviors (Ajzen
468 & Driver, 1992), the finding that less positive perceptions of relationships with parents,
469 coaches, and peers are independently associated with less intention to continue is in line with
470 previous dropout research (Balish et al., 2014; Crane & Temple, 2015). Although research
471 investigating all three social figures simultaneously has looked specifically at motivational
472 climates in relation to both enjoyment and intention to continue, none of the motivational
473 climates were directly related to intention to continue. Instead, the task-involving
474 motivational climates were indirectly associated with intention to continue through
475 enjoyment (Atkins et al., 2015). The difference between the findings in regards to perceptions
476 of the motivational climate and the direct perceptions of relationships in the current study
477 may highlight the importance of investigating other types of relationships contributing to the
478 wider social climate. This is further evidenced by inconsistent findings regarding enjoyment
479 where parent and/or peer created motivational climates were found to be more influential
480 than coach created motivational climates (Atkins et al., 2015; Chan et al., 2012). Therefore,
481 as in some previous research (e.g., Rottensteiner et al., 2015), future research might benefit
482 from including both direct perceptions of relationships as well as motivational climates with
483 all three social figures to examine their unique and relative influence on motivational
484 outcomes in youth sport.

485 Similar to the findings on enjoyment, individuals in the positive friendship quality
486 profile also reported relatively less intention to continue, whereas those in the positive social
487 climate and positive coach relationship quality profiles reported high intention to continue.
488 Again, this may be suggesting that the coach-athlete relationship is particularly important
489 whilst deemphasizing the importance of perceived friendship quality, or highlighting the
490 compensatory nature of social relationships. However, given that the positive coach
491 relationship quality profile and the positive friendship quality profile did not differ
492 significantly from one another, this notion appears more tenuous in regards to intentions to
493 continue. This is an interesting finding given that enjoyment and intention to continue or
494 drop out have consistently been linked in youth sports research (Atkins et al., 2015). It is
495 possible that the use of a multi-item scale to measure enjoyment, as opposed to a single-item
496 scale to assess intention to continue, produces a more reliable measure and allows for more
497 distinguishable results (Nunnally, 1978). Additionally, there may be fundamental differences
498 between the nature of intentions and enjoyment in this context. For example, according to the
499 Theory of Planned Behavior (Ajzen & Driver, 1992), intentions are influenced by perceived
500 social norms, perceived behavioral control, and attitudes toward the behavior. In contrast,
501 support from key social figures along with effort and mastery have been identified as the
502 major sources of youth sports enjoyment (Scanlan, Carpenter, et al., 1993). Therefore, the
503 direct relationship between aspects of the social climate and enjoyment may have led to
504 greater sensitivity to differences in the profiles, as compared to intention to continue. This is
505 further supported by the finding that the social climate profiles were indirectly linked with
506 intentions through enjoyment. Therefore, in line with previous behavioral change theories,
507 the two outcomes can be ordered, with enjoyment preceding intentions (Atkins et al., 2015;
508 Quested et al., 2013).

509 **Practical Implications**

510 The use of a person-centered approach to identify distinct profiles of individuals may
511 enable researchers to identify individuals at risk of negative outcomes, such as dropout, and
512 develop intervention strategies tailored to address their specific issues. For example, the
513 finding that individuals who perceive a high quality coach-athlete relationship experienced
514 the greatest enjoyment and intentions to continue, despite having relatively low levels of
515 parental support, friendship quality, and peer acceptance, suggests that the coach-athlete
516 relationship is of significant value. Therefore, researchers might target this relationship to
517 potentially prevent outcomes including dropout. For example, coach education programs
518 could be developed to teach coaches strategies and techniques that facilitate high quality
519 relationships with athletes. These may include communication skills, team building activities,
520 positive reinforcement and feedback, developing trust, goal setting, being responsive and
521 supportive, and how to appropriately discipline athletes (Camiré, Forneris, Trudel, &
522 Bernard, 2011; Gould et al., 2007).

523 Although the present research suggests that the coach-athlete relationship may be of
524 particular importance, relationships with parents and peers in youth sport should not be
525 discounted. Findings demonstrated that distinct combinations of interpersonal relationships
526 are associated with motivational outcomes in youth sports, and support the notion that some
527 positive relationships can compensate for other less positive relationships (Furman &
528 Buhrmester, 1985). It is therefore important that the collective influence of all three social
529 figures be considered in future research to enable a more comprehensive understanding of the
530 youth sports experience. Future research might also benefit from looking at more specific
531 variables, such as relationships with mothers and fathers separately, or the influence of peers
532 outside the sports context (i.e., perceived behavioral norm).

533 **Limitations and Future Directions**

534 A limitation of the current research is the cross-sectional nature of the data as it does
535 not allow us to draw conclusions about causality or directionality. For example, we are
536 unable to determine whether individuals experience greater enjoyment and intention to
537 continue because of their high quality relationship with their coach, or whether it is because
538 they enjoy the sport and want to continue participating that they actively seek out and build
539 positive relationships with their coach. Future research should incorporate longitudinal
540 designs to explore this, along with actual dropout behavior.

541 Other limitations include the relatively small percentage of variance explained by the
542 profiles and the entropy level in the latent profile analysis falling short of the recommended
543 level of .80 (Celeux & Soromenho, 1996) which may reflect issues of distinctiveness.
544 However, the entropy value of .75 is not substantially lower than the recommendation and
545 indicates fairly good separation between the profiles. Furthermore, other statistical criteria
546 including the results of the BLRT and the average probabilities for most likely latent variable
547 membership support the retained profiles. Research utilizing more detailed measures of social
548 relationships may result in profiles that better distinguish between individuals. Additionally,
549 the levels of enjoyment and intention to continue within the sample were not normally
550 distributed. The sample reported high levels of both variables which indicates the existence of
551 ceiling effects. This is a common issue in youth sports research given that individuals
552 generally participate in their sport voluntarily so are expected to have high levels of
553 motivation (Smith et al., 2006). Although the results and profiles are explained in relative
554 terms, rather than absolute terms, when we consider the profiles with the lowest enjoyment
555 and intention to continue, it is important to remember that they do not necessarily have low
556 levels of enjoyment and intention to continue in absolute terms.

557 The current research also utilizes participants aged 11 to 15 years, which is a fairly
558 wide age range in this context. For example, previous research revealed age effects during

559 adolescence with the importance of parents, coaches, and peers varying as sports participants
560 progress through childhood and adolescence (Chan et al., 2012). Future research with larger
561 sample sizes would allow for specific age effects to be examined which could provide further
562 insights into the links between social relationships and sport participation in children and
563 adolescents. Another limitation is that participants were recruited from two private high
564 schools and therefore are of relatively high socioeconomic status. This is important given that
565 socioeconomic factors have been found to be predictors of sports participation and dropout
566 (Vella, Cliff, & Okely, 2014). This is reflected in the high percentage of participation
567 reported within the sample. Therefore, the study should be replicated in a sample
568 incorporating participants from a range of socioeconomic positions and from a greater
569 number of schools which enables the use of a clustered design. Furthermore, this research
570 should consider other factors implicated in youth sports participation, such as parental
571 pressure, as participation may not always be completely voluntary for youth sports
572 participants (Friedman, 2013). The sample was also skewed towards females. Future research
573 should aim to include a more even spread of males and females, or investigate each gender
574 separately. Nevertheless, key strengths of the study include the incorporation of all three
575 social figures and the use of latent profile analysis which is an improvement on other
576 previously used statistical techniques such as cluster analysis (Pastor, Barron, Miller, &
577 Davis, 2007).

578 **Conclusion**

579 The results of this study revealed that individual differences in perceptions of the
580 social climate, based on relationships with parents, coaches, and peers, exist and fall into
581 distinct profiles which are associated with varying levels of enjoyment and intention to
582 continue in sport. Additionally, the social climate profiles were linked with intention to
583 continue indirectly through enjoyment. Results highlight the importance of investigating

584 combinations of relationships with the three key social figures in youth sports. The findings
585 suggest that the coach-athlete relationship may be of particular importance and may
586 compensate for a lack of other supportive relationships in this age group. Findings could have
587 important implications for understanding youth sports participation and dropout, which in
588 turn could aid in improving physical and psychosocial health outcomes among children and
589 adolescents.

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