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An Exploration of Sociometric Status and Peer Relations in Youth Sport

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25 Abstract

26 More than 10 years ago, it was suggested that sociometry and systematic observation were two
27 potentially useful but under-utilized methods for the study of peers in youth sport (Smith, 2003).
28 Despite this call, the methods used to study peers in sport remain largely focused on athletes'
29 perceptions through questionnaires and interviews. Thus, the purpose of this exploratory,
30 descriptive study was to investigate the utility of sociometry in relation to sport competence and
31 observed athlete behavior in youth sport. Three adolescent female volleyball teams were
32 videotaped during three practice sessions, and sport competence and sociometric status were
33 assessed using questionnaires. An observational coding system was developed and used to code
34 athlete behaviors and data were compared across sociometric status groups. Results revealed
35 significant differences between sociometric status groups on peer ratings of sport competence,
36 but not on athlete behavior. However, interesting findings emerged with respect to how status
37 groups interacted with teammates and coaches. Thus, sport competence seems to be an important
38 factor in gaining acceptance among youth peer groups. Further, sociometry and behavioral
39 observation appear to be useful techniques that should continue to be employed in the study of
40 peer relations in youth sport.

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42 *Keywords:* observation, athlete behavior, peers, peer acceptance

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48 Exploring Sociometric Status and Peer Relations in Youth Sport

49 Peers have been shown to influence a multitude of positive and negative outcomes in
50 youth's sport experiences. For instance, peer acceptance is associated with increased self-esteem
51 (Daniels & Leaper, 2006), positive physical self-worth, and intrinsic motivation toward physical
52 activity and sport in adolescents (Smith, 1999). Children and adolescents also cite the
53 opportunity to positively interact with peers and develop and strengthen friendships as a
54 principal source of enjoyment in sport (Weiss & Smith, 2002). However, peers can also play a
55 negative role in sport participation; for instance, peers can be perceived as a source of stress and
56 anxiety through negative evaluation and conflict (Fraser-Thomas & Côté, 2009). This variable
57 relationship between peers and youth's sport experiences suggests that this is an area of research
58 that should be examined further, specifically in the types of interactions and relationships that
59 lead to differential outcomes.

60 One of the most widely studied and foundational constructs within the peer literature is
61 peer acceptance. Peer acceptance, popularity, and social status are all interchangeable group
62 constructs which reflect the experience of being liked or accepted by one's peer group (Weiss &
63 Stuntz, 2004). Much of the early research on peers in sport focused on understanding youth's
64 perceptions of the characteristics important for being accepted within one's peer group. In
65 particular, researchers have been interested in the relationship between peer acceptance and
66 athletic ability or sport competence. It has been widely shown that youth cite sport competence
67 as one of the most important qualities for acceptance into one's peer group, a finding which
68 holds true across genders (Lindstrom & Lease, 2005) and in both children (e.g., Chase &
69 Dummer, 1992) and adolescents (e.g., Vannatta, Garstein, Zeller, & Noll, 2009).

70 The benefits of being athletically skilled also appear to extend beyond peer acceptance. A
71 study of male children suggested that the most highly skilled athletes were also afforded greater
72 opportunities to develop leadership qualities (Evans & Roberts, 1987). Playing significant roles
73 in games may have allowed these athletes to further develop their athletic and interpersonal skills
74 (e.g., develop friendships). Similar findings have also demonstrated this link between sport
75 competence, peer acceptance, and leadership in adolescent athletes (Moran & Weiss, 2006).

76 While there is evidence for the association between peer acceptance and sport
77 competence, a number of limitations still persist. This relationship has primarily been studied
78 among children and adolescents within a classroom context; it is unknown whether similar
79 relationships persist among organized sport teams. Further, researchers have most often assessed
80 self-perceptions of peer acceptance through self-report questionnaires (e.g., Harter, 1982).
81 However, if one's intention is to measure how well accepted an individual is by their peer group,
82 it is sensible to collect data from one's peer group. One way to do so is through the use of
83 sociometry, which has been widely used in developmental psychology to assess an individual's
84 level of peer acceptance (i.e., sociometric status) from the perspective of one's peer group
85 (Newcomb, Bukowski, & Pattee, 1993).

86 Sociometric status is commonly measured using peer nominations (Coie, Dodge, &
87 Coppotelli, 1982). In his approach, participants select individuals that correspond to their
88 perceptions (e.g., teammates they like the most and/or least) by circling the name(s) on a list or
89 writing them down. These nominations are used to establish group membership using a
90 standardized score procedure (Coie et al., 1982). Participants are classified into one of five
91 groups: (1) Popular (many positive and few negative nominations); (2) rejected (few positive and
92 many negative nominations); (3) neglected (few positive and negative nominations); (4)

93 controversial (many positive and negative nominations); and (5) average (average number of
94 positive and negative nominations).

95 Research in developmental psychology has demonstrated many robust findings regarding
96 the behavioral correlates of sociometric status among youth (Newcomb et al., 1993; Rubin et al.,
97 2006). In general, youth of higher sociometric status tend to display more adaptive social skills
98 and peer interactions than youth of lower sociometric status (Rubin et al., 2006). Popular youth,
99 who are most well-liked by their peers, usually have the social abilities to maintain positive
100 relationships with peers (Asher & Parker, 1989). Rejected youth seem to be polar opposites of
101 their popular peers, with a tendency to be less cognitively skilled and sociable and more
102 aggressive and withdrawn (Newcomb et al., 1993). Controversial youth appear to parallel their
103 receipt of both positive and negative nominations; they tend to be more aggressive (similar to
104 rejected peers), but also show greater sociability (similar to popular peers; Newcomb et al.,
105 1993). Finally, there is some controversy regarding the neglected sociometric status because
106 individuals classified into this group tend to exhibit the fewest behavioral differences compared
107 to the average group. However, overall, neglected youth tend to exhibit a lower level of social
108 interaction and are less visible within their peer group (Newcomb et al., 1993). While other
109 approaches to categorizing peer relations exist (e.g., Smith, Ullrich-French, Walker, & Hurley,
110 2006), the above mentioned groups are arguably the most prevalent categorization of sociometric
111 status in developmental psychology (Cillessen & Bukowski, 2000). It is thus a reasonable
112 framework to utilize in extending this approach to the sport context.

113 Numerous studies have been published on the behavioral correlates of sociometric status
114 in youth, but most of them have been conducted in a school setting. It should not be assumed that
115 findings regarding peer relations in one context automatically apply to others (Weiss & Stuntz,

116 2004; Zarbatany et al., 1992). Despite the wealth of research utilizing sociometric methods,
117 young children have been studied most extensively using this method in comparison to
118 adolescents. This is because sociometry is best suited to stable, closed peer systems (Brown,
119 2004). In high school, class rotations expose students to a changing, unstable group of peers
120 (Poulin & Dishion, 2008); however, organized sport represents a unique context that is ideal for
121 the study of peer relations across both childhood and adolescence. In most cases, organized sport
122 teams are set at the beginning of the sport season and this group of athletes interacts on a regular
123 basis at practices and games. Therefore, organized sport represents a potentially useful context to
124 study peer relations in adolescence using sociometric methods.

125 However, relatively few youth sport studies have employed sociometric techniques to
126 examine peer acceptance (Smith, 2003; Vierimaa, Erickson, Côté, & Gilbert, 2012). Although
127 researchers employing sociometric methods are often interested in interactive behaviors
128 associated with sociometric status, there have been relatively few studies in developmental
129 psychology and none in sport that have measured behavior directly. This can be problematic
130 because alternative methods of measuring behavior (e.g., self or other ratings) may lack the
131 sensitivity to detect subtleties captured through systematic observation (Pepler & Craig, 1995).

132 Even though it is well known that peer interactions can help to facilitate positive sport
133 experiences, researchers have yet to fully evaluate the actual behaviors that make up these
134 interactions (Murphy-Mills et al., 2011). Only a handful of studies have also observed athlete
135 communication during team sport competition (Hanin, 1992; Lausic, Tenenbaum, Eccles, Jeong,
136 & Johnson, 2009; LeCouteur & Feo, 2011) and practice sessions (Erickson, Côté, Hollenstein, &
137 Deakin, 2011). Collectively, these studies highlight the complexity and context-dependent

161 the coaches and athletes to the research team and equipment, while the two subsequent
162 recordings of each team were used for analysis. All athletes who were present for the second and
163 third recording sessions and who completed the questionnaires were retained for analysis. All
164 videos were recorded during the middle of each team's season within four weeks of each other.
165 Sixty minute segments were selected from each practice session, all of which included warm-
166 ups, structured drills, breaks, and scrimmages, yielding six total hours of video for analysis.

167 Questionnaires were administered following each team's final recorded practice session
168 in order to help mitigate reactivity to the sensitive nature of the measures. The research team
169 emphasized the strict confidentiality of the athletes' responses, given the sensitive nature of the
170 peer ratings and nominations, while multiple members of the research team were present to
171 monitor the activity and prevent chatting among athletes.

172 **Measures**

173 **Sport competence.** The participants' sport competence, or athletic ability was assessed
174 using the Sport Competence Inventory (Vierimaa, Erickson, Côté, & Gilbert, 2012), which was
175 adapted from a single-item measure which was previously used to assess perceptions of athletic
176 competence among children (Causgrove Dunn, Dunn, & Bayuza, 2007). The Sport Competence
177 Inventory is composed of three items which assess athletes' technical (e.g., blocking), tactical
178 (e.g., decision making), and physical (e.g., speed) sport skills respectively, which are prefaced by
179 the question stem: "Please rate this person's sport competence in the following areas...". This
180 instrument measures sport competence perceptions from three perspectives: self, peer, and coach.
181 Athletes rate themselves and each of their teammates on the three items using a 5-point Likert
182 type scale ranging from '*not at all competent*' to '*extremely competent*'. Coaches also complete
183 an identical set of items for each of their players. Self and coach ratings are reflective of each

184 athlete's self rating and that of their respective head coach, while peer ratings are determined
185 from the mean ratings from each athlete's teammates.

186 **Sociometric status.** Sociometric status was assessed using a peer nomination
187 questionnaire (adapted from Coie et al., 1982). Participants responded to two statements: (1)
188 Identify the three teammates that you enjoy participating in your sport with the most, and (2)
189 identify the three teammates that you enjoy participating in your sport with the least. These two
190 items deviated slightly from the traditional measurement of peer like and dislike (e.g., Coie et al.,
191 1982) in order to focus on athletes' peer relations strictly within the team environment. Athletes
192 indicated their selections for each question by circling the corresponding teammates' names on a
193 randomly-ordered roster (Poulin & Dishion, 2008). Athletes were explicitly instructed to base
194 their selections on their experiences within the team environment, excluding previous
195 experiences outside of the sport environment (e.g., school).

196 **Athlete behavior.** Given the lack of observational research on peers in sport, the present
197 study necessitated the development of the Athlete Behavior Coding System (ABCS). The ABCS
198 provides an exhaustive categorization of athlete behavior on a continuous basis, meaning the
199 duration of athletes' behavior is coded for each second of a given observation. The development
200 of the categories for the ABCS was informed by relevant coding systems from both within (e.g.,
201 Erickson et al., 2011; LeCouteur & Feo, 2011) and outside of sport (e.g., Dishion et al., 1989;
202 Rusby et al., 1991). An iterative review of salient literature and pilot video from multiple youth
203 sport contexts (e.g., soccer, swimming, tennis, and volleyball) yielded a total of 8 content
204 categories: (1) Prosocial communication (e.g., complimenting a teammate), (2) technical/tactical
205 communication (e.g., discussing strategy), (3) directive communication (e.g., telling a teammate
206 to change positions on the court), (4) general communication (e.g., chatting about a television

207 show), (5) engaged (e.g., participating in practice), (6) non-cooperative/disruptive (e.g., ignoring
208 the coach's instructions), (7) antisocial communication (e.g., criticizing an opponent), and (8)
209 uncodable (e.g., out of view of camera). The specific target of each interactive behavior (i.e.,
210 peers or coaches) was also recorded. While other measures such as the frequency of each
211 behaviour category can be gleaned from the ABCS, this initial exploratory study focused only on
212 the mean duration in which each behaviour was displayed during a practice session.

213 ***Reliability Testing.*** One independent coder was trained on the use of the ABCS to assist
214 the primary researcher in coding the data. Following a three week training period, the
215 prospective coder was assigned ten minute assignments which were compared with a gold-
216 standard coded by the primary researcher. This process continued until an average frequency
217 agreement of 75% was reached for two 10 minute video segments, in line with previous research
218 (Erickson et al., 2011; Hollenstein, Granic, Stoolmiller, & Snyder, 2004). Frequency agreement
219 refers to the total number of occurrences that all coders activated the same exact string of codes
220 (i.e., participant, behaviour content, and target) within a three second window of time.

221 **Data Analysis**

222 Participants' sociometric status was determined based on Coie and colleagues' (1982)
223 classification procedure. The total number of positive and negative nominations that each
224 participant received were tallied and converted into standardized enjoyed most (zEM) and
225 enjoyed least (zEL) scores. Indices of social preference ($SP = zEM - zEL$) and social impact ($SI =$
226 $zEM + zEL$) were calculated and standardized for each participant. These standardized scores
227 were used to classify participants into one of five sociometric status groups: (a) Popular ($SP >$
228 $0.8, zEM > 0, zEL < 0$); (b) rejected ($SP < -0.8, zEM < 0, zEL > 0$); (c) neglected ($SI < -0.8,$

229 zEM and zEL < 0); (d) controversial, (SI > 0.8, zEM and zEL > 0); and (e) average, consisting of
230 all remaining participants.

231 In line with past research, the goal of the present study intended to explore how
232 sociometric status groups deviated from average (Newcomb et al., 1993). To do so, independent
233 samples *t*-tests were used to compare the extreme groups (i.e., popular, rejected, neglected, and
234 controversial) with the average group on measures of behavior duration and self ratings of sport
235 competence. The same comparisons were also examined for the peer and coach ratings of sport
236 competence using dependent samples *t*-tests. The Bonferonni-corrected alpha-value was set at
237 .01 to control for multiple comparisons within each conceptual grouping. In line with the
238 exploratory nature of this descriptive study, *t*-tests were used to examine the pairwise
239 comparisons of interest, which may not have been possible with a potentially non-significant
240 ANOVA given the small sample size and statistical power. Effect sizes (*d*) were calculated and
241 reported alongside *p*-values to aid in interpreting the data; by convention, effect sizes of 0.20,
242 0.50, and 0.80 were considered small, moderate and large effects, respectively (Cohen, 1992).

243 Results

244 Coding System Reliability

245 The primary researcher and independent coder reached the minimum 75% frequency
246 agreement prior to coding video designated for analysis (frequency agreement = 83.20%; kappa
247 = .83). Later in the coding process, a 20-minute segment was randomly selected to be coded by
248 both coders, which was used in a second inter-rater reliability check (frequency agreement =
249 79.10%).

250 Sociometric Status

251 Of the 28 participants, nine (32.1%) were classified as popular, three (10.7%) as rejected,
252 seven (25%) as neglected, three (10.7%) as controversial, and six (21.4%) as average. These
253 groupings will be used to compare the participants in all subsequent analyses.

254 Sport Competence

255 The peer ($\alpha = .72$) and coach ($\alpha = .72$) formats of the three item questionnaire
256 demonstrated adequate internal consistency, while the self rating format ($\alpha = .60$) scored slightly
257 lower. Correlations between the three sources of competence perceptions showed a strong
258 relationship between peer and coach ratings of competence ($r = .81, p < .01$), while self ratings
259 of competence were weakly correlated to coach ($r = .18, p = .44$) and peer ($r = .31, p = .16$)
260 ratings, respectively. Basic descriptives of the mean self, peer, and coach ratings of sport
261 competence with the participants grouped by sociometric status are presented in Table 1.

262 T-tests were performed to examine how other sociometric status groups differed from the
263 average group on ratings of competence (Table 2). No groups differed significantly from the
264 average athletes on self ratings. For peer ratings, popular athletes received significantly higher
265 competence ratings compared to average athletes, ($t(27) = -4.64, p < .01, d = 0.88$), while
266 rejected athletes received significantly lower ratings compared to average, ($t(18) = 3.66, p < .01,$
267 $d = 0.84$). No significant differences emerged for coach ratings; however, the comparisons of
268 popular and average athletes ($t(2) = 5.28, p = .03$), and controversial and average athletes ($t(2) =$
269 $8.00, p = .01$) were both approaching statistical significance.

270 Athlete Behavior

271 The few instances of sport-related directive communication were collapsed within
272 technical communication, and a lack of observed antisocial communication excluded it from

273 further analyses. All of the other active communicative codes (i.e., prosocial, technical, and
274 general communication) were further differentiated by target, indicating whether an athlete was
275 interacting with a coach or teammate. Post-hoc power analyses revealed that *t*-tests were
276 underpowered with all comparisons well below the .80 threshold (the highest being .08) to detect
277 significant medium effects, given the limited sample size. The following sections will thus
278 describe the observed trends in terms of effect size (*d*); specifically, effect sizes larger than 0.5
279 (medium) will be noted to highlight the principal observed trends in this sample.

280 A square root transformation was applied to the positively skewed variables representing
281 the mean duration of athletes' behavior. Figure 1 displays the mean duration of each athlete
282 behavior category across sociometric status groups. Additionally, descriptive statistics for the
283 mean duration of each athlete behavior can be found in Table 3. While raw means and standard
284 deviations are provided, *t*-tests were conducted using the transformed scores (Table 4). No
285 statistically significant differences were observed between the average and the other sociometric
286 status groups for any of the behavior categories; however, many medium to large effect sizes
287 were observed. Large effect sizes ($d = 1.08-1.48$) suggest that the popular athletes engaged in
288 more general communication with coaches and less technical communication with peers in
289 comparison to the average athletes. Rejected and neglected athletes appeared to be less sociable
290 overall, compared to average athletes, given the large observed effect sizes ($d = 0.89-2.04$).
291 Similarly, rejected and neglected athletes spent less time displaying prosocial and technical
292 communication with coaches, and general communication with peers compared to the average
293 group ($d = 0.58-1.23$). Neglected athletes also displayed higher levels of general communication
294 with coaches ($d = 1.64$). Finally, the controversial athletes spent more time than their average

295 teammates engaged in technical communication with peers and general communication with
296 coaches ($d = 1.12-1.5$).

297 **Discussion**

298 This exploratory descriptive study aimed to uncover differences between sociometric
299 status groups on ratings of sport competence and observed athlete behavior during practice
300 sessions. A number of significant differences emerged with respect to sport competence and
301 sociometric status, and even though no significant differences were observed for any behavioral
302 measures, a number of interesting findings warrant consideration, which will be discussed
303 alongside the potential utility of systematic observation and sociometry in future sport research.

304 Popular athletes received peer competence ratings that were significantly higher than
305 average athletes, and coach ratings that were nearly significantly higher than average athletes.
306 On the other hand, rejected athletes received significantly lower peer ratings of sport competence
307 than average athletes, which together corroborates previous research and supports the notion that
308 sport competence is a major factor associated with youth's social status (e.g., Vannatta et al.,
309 2009; Weiss & Duncan, 1992). The present study extends previous research conducted primarily
310 in schools and highlights that this finding may also hold true within youth sport teams; athletes
311 may enjoy participating with competent teammates as it promotes an overall feeling of success or
312 competence. Further, the similarity of peer and coach ratings of competence highlights the
313 potential influence of the coach on athletes' perceptions of competence and popularity.

314 Popular athletes appeared to spend less time discussing general, non-sport related topics
315 with their peers, and more time displaying this behavior with their coach, compared to the
316 average group. If we also consider the popular group's elevated sport competence, it could be
317 suggested that they spent less time in general communication with their peers because they are so

318 highly invested in their sport. These highly competent, popular athletes may tend to spend more
319 time on skill development that could have otherwise been spent chatting with their peers.
320 Similarly, expectancy theory, the notion that an expectation serves to cue a given behavior,
321 leading to that expectation becoming true (Merton, 1948), may help to explain the increased
322 amount of time popular athletes spent communicating with their coaches during practice.
323 Research on adolescent athletes has suggested that coaches provide more attention to athletes
324 they perceive to be more skilled (Solomon, DiMarco, Ohlson, & Reece, 1998). Therefore, as
325 coaches in the present study perceived popular athletes to be the most competent, they may have
326 been more inclined to spend more time interacting with those athletes.

327 However, it is also possible that sociometric status may instead be a product of a
328 combination of other factors such as sport competence, since not all correlates of sociometric
329 status are behavioral in nature (Rubin et al., 2005). Sport competence, physical appearance, and
330 academic competence all appear to be predictors of peer acceptance in children and adolescents
331 (Vannatta et al., 2009). These athletes may have been well-liked by their peers due to their sport
332 competence or other individual factors aside from their social behavior. Given the previously
333 established links between peer acceptance, sport competence, and other factors such as peer
334 leadership and friendship quality (e.g., Moran & Weiss, 2006), future research should examine
335 whether relationships between these factors and specific behavioral characteristics emerge that
336 may help to explain these findings.

337 Overall, the rejected and neglected groups tended to be less sociable than the average
338 group, a finding consistent with past research in schools (e.g., Newcomb et al., 1993). These two
339 groups also shared similar characteristics with respect to the specific behaviors that they
340 displayed. Both groups spent less time displaying general, non-sport related interactions with

341 peers compared to average. In schools, it has been shown that lower status individuals tend to
342 belong to smaller cliques compared to higher status individuals (Benenson, Apostoleris, &
343 Parnass, 1998). It is therefore possible that the rejected and neglected groups displayed lower
344 relative levels of sociability and peer interaction because they were only comfortable interacting
345 with a smaller subset of their peers.

346 Similarities were also observed between rejected and neglected athletes in relation to
347 their interactions with coaches. Both groups engaged in less prosocial and technical
348 communication with coaches. It is possible that this could sometimes be explained by the
349 athletes ignoring the coach due to a lack of social skills (Newcomb et al., 1993); however, it is
350 also possible that these athletes may have been ignored by their coaches, which is line with
351 education research which has found that teachers sometimes reject students who have also been
352 rejected by their peers (Lopes, Cruz, & Rutherford, 2002). While it is unknown whether similar
353 findings exist in a youth sport context, it warrants future consideration.

354 Expectancy theory may also help to explain that coaches provided less prosocial and
355 technical feedback to athletes of lower sociometric status, whom they also perceived as less
356 competent. The expectancy that a coach has for a certain athlete will affect how the coach treats
357 that particular athlete (Rejeski, Darracott, & Hutslar, 1979). Studies of intercollegiate and high
358 school basketball players and coaches revealed that high expectancy (i.e., highly skilled) athletes
359 received more technical instruction and praise from coaches than low expectancy (i.e., less
360 skilled) athletes (Solomon et al., 1998). Solomon and Rhea (2008) also found that sport
361 competence, or athletic ability, was one of the most important sources of information that
362 coaches used to derive their perceptions of athletes. Thus, it is possible that this finding is
363 indicative of the competitive nature of sport and coaches' underlying desire to win—coaches

364 may favor their more highly skilled players in order to improve their team's chances at winning
365 in subsequent competitions.

366 However, this self-fulfilling prophecy can be problematic in youth sport contexts when
367 one of the primary coaching goals to foster skill development among all athletes (Côté, Young,
368 North, & Duffy, 2007). By providing certain athletes increased technical feedback and
369 encouragement, coaches may be amplifying the disparity between athletes of low and high social
370 status and/or competence level, effectively inhibiting the skill development of a large portion of
371 young athletes. This imbalance of prosocial and technical communication with coaches seems to
372 be contrary to the suggestion that effective coaches should assess athletes and provide feedback
373 and instruction to challenge them to improve (Côté et al., 2007). Based on this notion, it would
374 be expected that youth sport coaches would provide more feedback to lesser skilled athletes to
375 motivate them to develop their sport skills. Similarly, effective coaches are expected to possess
376 intrapersonal knowledge which includes constant introspection (Côté & Gilbert, 2009). In this
377 case, coaches should be cognizant of their neglect of certain subsets of athletes, and then tailor
378 their subsequent behaviors accordingly to allow for optimal opportunities for athlete
379 development.

380 Compared to average athletes, controversial athletes appeared to spend more time
381 engaged in non-sport related communication with coaches, and sport-related communication
382 with peers. Engaging in general communication with coaches is consistent with popular athletes;
383 however, the controversial group seemed to bear no striking behavioral similarities to their
384 rejected peers. Thus, the present sample partially supports the conceptualization of controversial
385 individuals as sharing similarities with both popular and rejected peers (Newcomb et al., 1993).

386 The finding that controversial athletes seemed to engage in high levels of technical
387 communication with their peers is a finding that may be unique to this sociometric status group.
388 This may be a polarizing trait, where certain peers appreciated the frequent technical
389 communication provided by these athletes, while others were opposed to it, leading to
390 moderately high levels of both positive and negative peer nominations. In female adolescent
391 athletes, peer acceptance and self-perceived sport competence were predictive of peer leadership
392 (Moran & Weiss, 2006). In the present study, controversial athletes may have perceived
393 themselves as leaders, motivating them to provide higher levels of technical instruction and
394 feedback to their teammates. To this effect, future research should probe athletes regarding their
395 behavior in sport to uncover the association between internal perceptions and observed behavior.

396 **Limitations and Future Directions**

397 Given that the present study was one of the first of its kind to measure sociometric status
398 and athlete behavior through observation, it is not without limitations. An often cited drawback
399 of observational research is that it is very time-intensive (Rubin et al., 2006); thus, this
400 exploratory study was limited by its small sample size, which resulted in underpowered
401 statistical analyses. However, salient trends emerged (Figure 1) which should encourage the
402 future use of observation. In addition, it is important to state that, as with all observational
403 research, participants' behavior may have been influenced by the Hawthorne effect. However,
404 the direct observation of behaviors can also be considered a key strength of this study. Relatively
405 few studies of sociometric status have assessed behaviors through direct observation (Newcomb
406 et al., 1993); rather, self, peer, or teacher ratings of behavior are more often used (Rubin et al.,
407 2006). Systematic observation is regarded as the standard upon which other forms of behavioral
408 assessment should be compared (Rubin et al., 2005), and therefore this method should continue

409 to be employed by sport researchers unless an individual's perceptions are preferable to their
410 actual behavior. Future research on athlete behavior should consider the target of behaviors in
411 greater detail, in order to examine both *what* behaviors athletes are displaying and *who* athletes
412 are interacting with. The present study was cross-sectional in nature to provide a social snapshot
413 of three teams at one point in time during a season. However, while this design was appropriate
414 for an initial exploratory descriptive study, future research should longitudinally examine the
415 stability of sociometric status, sport competence, and behavior.

416 **Practical Implications**

417 Given the significant negative implications of peer rejection outside of the sport context
418 (Newcomb et al., 1993), the observed behavioral trends in the present study should be examined
419 further. If researchers can identify specific behavior patterns associated with sociometric status
420 in sport, this information could be translated to coaches and program developers to optimize the
421 youth sport environment to foster positive peer relationships and overall sport experiences. This
422 may be particularly important for the study's demographic; sport participation rates are generally
423 lowest for adolescent females compared to adolescent males and younger youth (Canadian
424 Fitness and Lifestyle Research Institute, 2012). Thus, the sport environment should be structured
425 to foster adaptive peer relations, leading to long-term sport participation.

426

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546 Table 1

547 *Mean Self, Peer, and Coach Ratings of Sport Competence*

	Popular <i>n</i> = 9 <i>M</i> (<i>SD</i>)	Rejected <i>n</i> = 3 <i>M</i> (<i>SD</i>)	Neglected <i>n</i> = 7 <i>M</i> (<i>SD</i>)	Controversial <i>n</i> = 3 <i>M</i> (<i>SD</i>)	Average <i>n</i> = 6 <i>M</i> (<i>SD</i>)
Self Ratings	3.76 (0.23)	3.06 (1.08)	4.00 (0.26)	3.78 (0.09)	3.50 (0.24)
Peer Ratings	4.27 (0.31)	3.23 (0.50)	3.65 (0.30)	3.46 (0.39)	3.64 (0.10)
Coach Ratings	3.86 (0.42)	3.00 (0.67)	3.37 (0.45)	2.94 (0.25)	3.25 (0.17)

548

Table 2

Comparison of Average and Extreme Groups on Sport Competence

	Average vs. Popular			Average vs. Rejected			Average vs. Neglected			Average vs. Controversial		
	<i>t</i> (df)	<i>p</i>	<i>d</i>	<i>t</i> (df)	<i>p</i>	<i>d</i>	<i>t</i> (df)	<i>p</i>	<i>d</i>	<i>t</i> (df)	<i>p</i>	<i>d</i>
Self Ratings	1.79 (9)	.11	1.24	0.82 (5)	.45	0.74	2.96 (7)	.02	2.25	1.90 (5)	.12	1.72
Peer Ratings	4.64 (27)	.00*	0.88	3.66 (18)	.00*	0.84	1.35 (27)	.19	0.25	0.32 (25)	.75	0.06
Coach Ratings	5.28 (2)	.03	3.05	1.00 (1)	.50	0.71	2.00 (2)	.18	1.15	8.00 (2)	.01	4.62

Note. * $p < .0125$. Self ratings reflect results of independent samples *t*-tests, while peer and coach ratings reflect results of dependent samples *t*-tests.

549 Table 3

550 *Mean Duration of Athlete Behavior (in seconds) per 60 Minute Practice Session*

Behavior	Popular <i>M</i> (<i>SD</i>)	Rejected <i>M</i> (<i>SD</i>)	Neglected <i>M</i> (<i>SD</i>)	Controversial <i>M</i> (<i>SD</i>)	Average <i>M</i> (<i>SD</i>)
Prosocial Coach	12.46 (14.02)	6.77 (1.25)	6.60 (4.77)	17.25 (20.39)	11.97 (12.07)
Prosocial Athlete	36.61 (32.58)	34.88 (27.01)	22.17 (15.12)	23.06 (12.30)	30.81 (32.04)
Technical Coach	129.17 (123.56)	61.48 (32.84)	65.11 (47.02)	82.83 (36.91)	108.66 (81.79)
Technical Athlete	144.79 (96.08)	126.72 (84.81)	131.97 (100.69)	162.71 (15.10)	130.28 (74.64)
General Coach	3.87 (7.99)	-	5.04 (7.74)	0.41 (0.72)	-
General Athlete	58.40 (60.77)	48.63 (28.41)	48.00 (73.71)	104.97 (155.37)	147.22 (155.37)
Engaged	3216.80 (308.25)	3390.55 (46.10)	3353.68 (225.38)	3237.09 (212.26)	3164.78 (231.56)

551

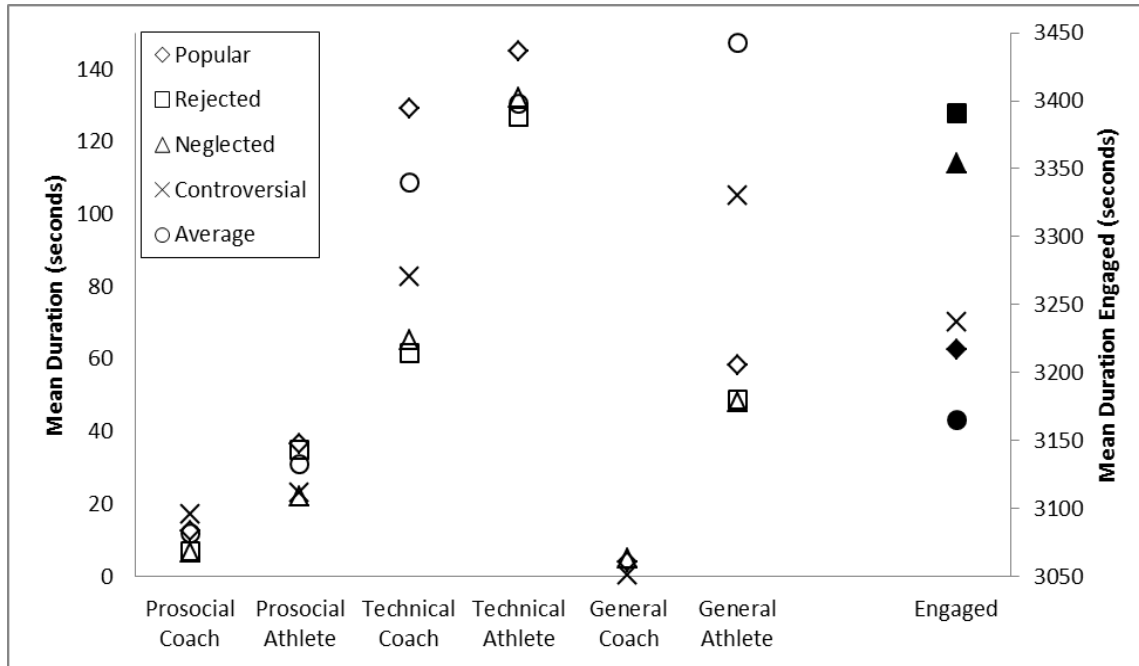
552

Table 4

Comparison of Average with Extreme Groups on Mean Number of Behavior Events (per 60 Minute Practice)

Behavior	Average vs. Popular			Average vs. Rejected			Average vs. Neglected			Average vs. Controversial		
	<i>t</i> (df)	<i>p</i>	<i>d</i>	<i>t</i> (df)	<i>p</i>	<i>d</i>	<i>t</i> (df)	<i>p</i>	<i>d</i>	<i>t</i> (df)	<i>p</i>	<i>d</i>
Prosocial Coach	.29 (13)	0.77	0.17	.59 (5.73)	0.58	0.52	.95 (11)	0.36	0.58	-0.24 (7)	0.82	-0.19
Prosocial Athlete	-.17 (13)	0.87	-0.1	-.51 (7)	0.63	-0.41	.08 (11)	0.94	0.05	0.17 (7)	0.87	0.13
Technical Coach	-.21 (13)	0.83	-0.12	.59 (7)	0.57	0.47	.84 (11)	0.42	0.51	0.08 (7)	0.94	0.06
Technical Athlete	-.26 (13)	0.8	-0.15	-.13 (7)	0.90	-0.10	.48 (11)	0.64	0.29	0.03 (7)	0.98	0.02
General Coach	-2.28 (8)	0.05	-1.65	-	-	-	-2.10 (6)	0.08	-1.72	-1.00 (2)	0.42	-1.50
General Athlete	.99 (13)	0.34	0.56	.91 (7)	0.39	0.73	1.37 (11)	0.20	0.83	-0.07 (7)	0.95	-0.05
Engaged	-.16 (13)	0.88	-0.1	.19 (7)	0.86	0.15	.67 (11)	0.52	0.40	0.31 (7)	0.77	0.24

Note. Effect sizes > 0.50 are in boldface.



553

554 *Figure 1.* Mean duration in which each behavior category was displayed during a 60 minute
 555 practice session.