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Peer motivational climate and character development: Testing a practitioner-developed youth sport model

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ABSTRACT

Youth sport is a key developmental context for many reasons, including the opportunities it provides for building relationships with peers and its potential to support character development. Peers can influence adolescent sport experiences and shape their motivations, and different peer motivational climates may differentially support athlete character. Established models identify different dimensions of peer motivational climate, yet these models do not describe how aspects of peer climate may align with character. We therefore assess profiles of peer motivational climate in relation to a multi-dimensional practitioner-developed theoretical model for character development through sport. Participants were 655 adolescent athletes from the greater Boston area, in the United States. Athletes perceiving a mastery-involved peer climate, even with high intra-team competition, were most likely to exhibit positive character attributes at the three levels of character assessed: themselves, their teammates, and the game. This study also demonstrates the utility of practitioner-developed models for adolescent research.

Peer influence becomes more important as youth enter adolescence and, in youth sports settings, peer acceptance and friendship have the potential to translate into motivation, commitment, and enjoyment (e.g., Weiss & Smith, 2002). Motivated athletes who are committed to, and enjoy participating in, their sport are more likely to continue playing (Balish, McLaren, Rainham, & Blanchard, 2014), and therefore more likely to reap the benefits associated with participation in youth sport (e.g., Gould & Carson, 2008). Thus, it is important to understand and support positive peer climates within youth sport.

In addition, sport participation may contribute to the development of character attributes when the sport context is supportive and provides good role models for moral behavior (Bredemeier & Shields, 1994). Given the aforementioned importance of peer influence in adolescence in general, and in youth sport in particular, in this study we explore the potential links between peer climate and the extent to which adolescent athletes exhibit character. This research draws on, integrates, and extends existing literature on peer motivational climates and character development in sport, using a practitioner-developed multidimensional model.

1. Peer motivational climate

The fact that peers can influence youth experiences in sport contexts, and help to shape their motivations, is well established (e.g., Ntoumanis & Vazou, 2005; Vazou, Ntoumanis, & Duda, 2005). Prior research refers to the motivational climate as comprising the norms and expectations of the team for either performance/ego orientation (emphasizing social comparison) or mastery/task

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orientation (emphasizing personal improvement; Ames, 1992). Peers play an important role in shaping motivational climates (Ntoumanis & Vazou, 2005; Vazou et al., 2005) and, in turn, the motivational climate can influence youth outcomes and experiences in sport. In particular, motivational climates involving peers with performance/ego orientations have been associated with burnout (Smith, Gustafsson, & Hassmén, 2010), whereas climates promoting mastery/task orientations have been associated with increased self-esteem and commitment to sport (Vazou et al., 2005), and intrinsic motivation (Jõesaar, Hein, & Hagger, 2011).

Prior studies have also shown that youth perceptions of their team's peer motivational climate were associated with factors at various levels. At the individual level, athletes' achievement orientations were associated with perceptions of peer motivational climate, such that athletes with high task orientation and low ego orientation were most likely to perceive high task-involving peer climates (Vazou, 2010). At the team level, having a successful season record or having a female coach was associated with higher perceptions of task-involving peer climates compared to teams with less successful records or male coaches (Vazou, 2010). Finally, at the level of how athletes approach the game, ego-oriented peer climates have been associated with increased gamesmanship (i.e., tactics aiming to gain psychological advantage; Ntoumanis, Taylor, & Thøgersen-Ntoumani, 2012). However, no team has a singular, uniform peer motivational climate; athletes on the same team may perceive different peer motivational climates (Vazou, Ntoumanis, & Duda, 2006) and those subjective experiences should be taken into consideration to understand links between team motivational climate and the behavior or development of individual athletes.

In addition, athletes with high task orientations do not necessarily have low ego orientations and vice versa (Hodge & Petlichkoff, 2000). Findings on individual-level goal orientations (often using a mean/median split technique; e.g., Duda, 1989; Roberts, Treasure, & Kavussanu, 1996) generally suggest that high task orientations are adaptive, whereas high ego orientations are maladaptive, although there is some evidence that ego orientation is less problematic when combined with high task orientation (e.g., Roberts et al., 1996). In turn, researchers have used person-centered approaches (e.g., cluster analysis, latent profile analysis) to examine whether certain profiles best promote the positive effects of task orientation or mitigate the negative effects of ego orientation. To our knowledge, these approaches have been used to test the associations with individual-level goal orientations, but not with athletes' perceptions of their peers' goal orientations. In this study, we use a person-centered approach (i.e., latent profile analysis) to identify different profiles of athletes' perceptions of the peer motivational climate, and to test whether profile membership is associated with character attributes at the individual-, team-, and game-levels of youth sport.

2. Youth sport and character development

Character attributes such as diligence, generosity, and honesty may be supported in sport contexts, but athletes must also balance moral character against desire to win (Camiré & Trudel, 2010). Thus, despite widespread popular belief that sport promotes character, the literature suggests that although character development may be supported in some sport contexts, it should not be viewed as an inevitable outcome of participation (Coakley, 2011).

Building on this “possible but not guaranteed” link between youth sport and character development, Positive Coaching Alliance (PCA), a national non-profit dedicated to promoting youth development through sport, developed a model to help sport programs more consistently lead to positive youth outcomes (Thompson, 2010). PCA's Triple-Impact Competitor® model posits that athletes can build character through sport by seeking to improve at three levels: Self, Teammates, and Game; and that by doing so they will develop character attributes that can be applied in non-sport settings as well (Thompson, 2010). The hypothesized links between PCA's programing, the Triple-Impact Competitor® model, and character development in and outside of sport are currently being tested in a longitudinal study (e.g., Ettekal, Konowitz, Agans, Syer, & Lerner, 2017). However, the purpose of this study is not to test youth outcomes of the PCA intervention, but to test PCA's theory that peer motivational climate is associated with character attributes at the three levels of youth sport conceptualized in their model. The principles of improving the Self, Teammates, and Game are universal to a variety of sports, including sports of different levels (e.g., recreational, competitive) and types (e.g., individual vs. team; contact vs. non-contact). For example, although athletes may compete individually in some sports (e.g., track and field), they train with their teammates and often contribute individual event points to a team score. In this study, we test PCA's theory among a diverse set of high school athletes who participated in several different sports.

3. The present study

This study examines links between profiles of peer motivational climate and athletes' contributions to improving the Self, Teammates, and the Game (the PCA Triple-Impact Competitor® model). First, based on theory and previous research (e.g., Hodge & Petlichkoff, 2000), we expected at least four profiles of youth athletes' perceptions of peer motivational climate: 1. high task, low competition/conflict; 2. low task, high competition/conflict; 3. high task, high competition/conflict; and 4. low task, low competition/conflict. In addition, we expected that unique classes would emerge with moderate scores on either task orientation and/or the ego orientation scales. Because previous work on individual-level ego orientation has not examined dimensions of competition and conflict separately, we did not have a priori expectations for classes varying across competition and conflict.

Second, as mastery orientation is understood to be beneficial in sport (e.g., Jõesaar et al., 2011; Vazou et al., 2005), we hypothesized that task-involved peer motivational climates would be associated with demonstration of positive character attributes related to Self, Teammates, and Game, as described in the PCA model. However, because previous research presents mixed findings with regard to the impact of ego orientation, we expected *either* that athletes perceiving their peers to be ego-oriented would exhibit less positive character attributes at each level of the PCA model, regardless of the presence of mastery orientation (e.g., Miller, Roberts, & Ommundsen, 2005) or that athletes perceiving their peers to be ego-oriented would only exhibit less positive character

attributes in the absence of mastery orientation (e.g., Duda, 1989; Hodge & Petlichkoff, 2000). By using a practitioner-developed theoretical model to test these hypothesized associations between peer motivational climate and youth character attributes, we sought to assess the utility of this model for understanding character in sport as a multidimensional construct (i.e., involving various levels).

4. Method

Data were derived from an ongoing evaluation of Positive Coaching Alliance (PCA) investigating character development among high school athletes (Ettekal et al., 2017), which was approved by the Institutional Review Board. The present study used data collected at the beginning of the sport season, before the PCA program was implemented. Thus, we do not discuss the effects of PCA programming, but rather test the relationship between peer motivational climate and the theory underlying the PCA model (i.e., that character development through sport is marked by efforts to improve the Self, Teammates, and the Game).

4.1. Participants

Participants were 655 adolescent athletes (45.7% female) from four ethnically- and socioeconomically-diverse high schools in the greater Boston area (M_{age} = 16.34, SD = 1.18). Relatively equal numbers of adolescents participated across the four high schools involved in the study. Participants were 49.6% Caucasian/White, 18.7% African American/Black, 11.1% Asian/Asian American, 9.5% Hispanic/Latino, and 11.1% other. Almost a third (27.8%) had a parent/guardian who completed at least a 4-year college degree; 30% had a parent/guardian with at most a 2-year college degree; 21.2% had a parent/guardian with at most a high school diploma, G.E.D, or some college; and 20.4% reported that the highest parental education in their family was “some high school.” Participants were recruited from team (74.8%) and individual (25.2%) sports across the fall (football and soccer), winter (indoor track and basketball), and spring (tennis and baseball/softball) seasons. This diverse group of athletes was recruited as the PCA model is designed to be applied to all types of sports, teaching athletes to strive toward self-improvement (Self), support other athletes training with them (Teammates), and elevate the sport (Game).

4.2. Procedures

Coaches distributed parental consent forms to all athletes on the selected teams. Adolescents returned the forms anonymously to their athletic director or to collection boxes at school. Comparison of the study sample to participation rosters provided by athletic directors suggest that almost half (42%) of the consent forms were returned (< 1% actively declined participation). Trained research staff administered the survey to adolescents with parental consent at their high schools prior to the start of the athletic season. Survey completion took approximately 45 min.

4.3. Measures

The survey included several demographic variables, including gender, race/ethnicity, and parental education, as well as measures of peer motivational climate and measures indexing efforts to improve in the domains of Self (i.e., diligence, mastery focus, ego focus), Teammates (i.e., leadership and generosity), and Game (i.e., moral disengagement and honesty). Descriptive information and reliability statistics for all scales are presented in Table 1. All scales, unless otherwise noted, used mean scores aggregated across the items within the scale.

4.3.1. Peer motivational climate

One scale was used to measure peer motivational climate (Ntoumanis & Vazou, 2005). Our prior work using these data has identified three underlying dimensions of this scale: task orientation, intra-team competition, and intra-team conflict (Ettekal, Ferris,

Table 1
Descriptive Information and Reliability Statistics for all Measures.

	Mean	SD	Cronbach's (α)	1	2	3	4	5	6	7	8	9	10
1. Peers' task orientation	3.93	0.64	0.94	–									
2. Peers' competition	3.40	0.76	0.81	0.12**	–								
3. Peers' conflict	2.55	0.94	0.88	−0.33**	0.37**	–							
4. Diligence	3.42	0.54	0.72	0.21**	−0.03	−0.19**	–						
5. Mastery focus	4.13	0.61	0.83	0.26**	0.09*	−0.11**	0.23**	–					
6. Ego focus	2.87	0.97	0.86	−0.13**	0.26**	0.20**	−0.11**	0.16**	–				
7. Leadership	3.96	0.69	0.79	0.43**	0.01	−0.22**	0.31**	0.45**	−0.03	–			
8. Generosity	3.85	0.66	0.75	0.39**	0.11*	−0.07	0.25**	0.38**	0.03	0.61**	–		
9. Moral disengagement	2.71	0.86	0.74	−0.06	0.31**	0.27**	−0.17**	−0.10*	0.29**	−0.05	−0.01	–	
10. Honesty	3.85	0.91	0.72	0.16**	−0.23**	−0.25**	0.17**	0.10*	−0.20**	0.11*	0.21**	−0.49**	–

Notes. $^{*}p < 0.05$. $^{**}p < 0.01$.

Batanova, & Syer, 2016). The task orientation subscale (12 items; 1 = *strongly disagree*, 5 = *strongly agree*) included athletes' perceptions of their teammates' focus on improvement (e.g., "Peers on this team help each other improve"), showing support (e.g., "Peers on this team make their teammates feel valued"), and encouraging effort (e.g., "Peers on this team encourage their teammates to try their hardest"). The intra-team competition subscale (5 items; 1 = *strongly disagree*, 5 = *strongly agree*) highlighted the degree to which teammates compete with one another (e.g., "peers on this team try to do better than their teammates"). The intra-team conflict subscale (4 items; 1 = *strongly disagree*, 5 = *strongly agree*) described issues that may promote conflict among teammates (e.g., "Peers on this team criticize their teammates when they make mistakes").

4.3.2. Improving the self

Three scales were used to measure the Self element of the PCA model: diligence, task orientation, and ego orientation. Diligence was a general, not sport-specific, measure of athletes' effort to pursue goals (Brandtstädter, Wentura, & Rothermund, 1999; 15 items; e.g., "When I run up against overwhelming obstacles, I prefer to look for a new goal" [reverse-coded]; 1 = *strongly disagree*, 5 = *strongly agree*). Task orientation was a sport-specific measure of athletes' orientation toward task-related success (7 items; e.g., "I feel most successful in sport when I work really hard"; Duda, 1989; 1 = *strongly disagree*, 5 = *strongly agree*) and ego orientation measured athletes' orientation toward performance-related sport successes (6 items; e.g., "I feel most successful in sport when I'm the best"; Duda, 1989; 1 = *strongly disagree*, 5 = *strongly agree*).

4.3.3. Improving teammates

Two scales were used to measure athletes' contributions to building better teammates: leadership and generosity, both developed by the research team for this study. The leadership scale measured the extent to which athletes demonstrated leadership in sport (3 items; e.g., "I try to always set a good example for my teammates"; 1 = *strongly disagree*, 5 = *strongly agree*). The generosity scale measured the extent to which athletes demonstrated generosity to their teammates (4 items; e.g., "I am willing to give up the opportunity for personal achievement to help my team succeed"; 1 = *strongly disagree*, 5 = *strongly agree*). Reverse-coded items were dropped from the original leadership and generosity scales developed for this study (three from leadership and two from generosity), because exploratory factor analysis resulted in a method factor for the reverse-coded items on each scale (results not shown). Dropping the reverse-coded items resulted in Chronbach's alphas that reached acceptable levels for each scale (see Table 1).

4.3.4. Improving the game

Two scales were used to measure athletes' contributions to a better Game: honesty (Ashton & Lee, 2009; 3 items; e.g., "If I knew I could never get caught, I would be willing to cheat in a game [reverse-coded]"; 1 = *strongly disagree*, 5 = *strongly agree*) and moral disengagement (Boardley & Kavussanu, 2007; 8 items; e.g., "Injuring an opponent is a way of teaching him/her a lesson"; 1 = *strongly disagree*, 5 = *strongly agree*). The three items comprising the honesty scale were reverse-coded; one forward-coded item was dropped from the original scale developed for this study because exploratory factor analysis yielded a method factor for the forward-coded item (results not shown). Dropping the forward-coded item resulted in a Chronbach's alpha that reached acceptable levels (see Table 1).

4.4. Analytic strategy

We used Latent Profile Analysis (LPA; Clogg, 1995) to identify profiles of athletes who varied across the three peer motivational climate subscales (peers' task orientation, intra-team competition, and intra-team conflict). LPA is a form of Latent Class Analysis (LCA) which uses continuous indicators and focuses on class-specific profile means (compared to conditional response probabilities in LCA). We tested profile solutions ranging from two profiles to six profiles, constraining covariances among the three indicators to be equal across profiles, as we did not have a theoretical reason to expect a different covariation pattern.

We used a combination of theory and several statistical indices to assess model fit, including two descriptive measures for model comparisons: the sample-adjusted Bayesian Information Criterion (BIC) and the Lo-Mendell-Rubin (LMR) likelihood ratio test. The BIC is an indicator of global fit, comparing models with different numbers of profiles and/or specifying different parameterizations. Lower BIC scores indicate better fitting models (Pastor, Barron, Miller, & Davis, 2007). The LMR is a significance test comparing nested models having the same parameterization, but specifying different numbers of profiles (Pastor et al., 2007). A statistically significant LMR indicates that the *k*-1 profile solution should be rejected in favor of the model with at least *k* profiles. When the BIC and LMR were discrepant, we placed more emphasis on the BIC as it performs better for identifying the number of profiles (Nylund, Asparouhov, & Muthén, 2007). We also examined whether individual class assignment probabilities were high for one and only one profile, which would indicate good profile separation (good classification quality would yield probabilities > 0.80; Clogg, 1995), and examined entropy as a descriptive summary measure of the classification quality. Entropy ranges between 0 and 1, where larger values indicate better profile separation. Using these indices of model fit, we selected the model which best fit the observed data and our theoretical expectations.

Because we had high class assignment probabilities (e.g., > 0.80) and high entropy (0.82), profile membership could be treated as observed. Thus, we used a classify-analyze approach (Clogg, 1995) to test whether profile membership was associated with the three tiers of PCA's model (i.e., contributing to a better Self, better Teammates, and a better Game) by assigning individuals to the LPA profile with the highest class assignment probability. We used ANOVAs to estimate mean differences across the profiles on the measures of athletes' contributions at the levels of Self, Teammates, and Game. When Levene's test was violated (i.e., the assumption of homogeneity of variance across groups), we interpreted the adjusted *F* statistic, which does not assume equal variances. We used

Table 2
Model Fit for Latent Profiles of Athlete Perceptions of the Peer Motivational Climate.

Model parameterization	Profile Solution				
	2	3	4	5	6
Sample size-adjusted BIC	4134	4038	3889	3902	3837
Lo-Mendell-Rubin	157.37	159.52**	167.34*	9.96	76.98
Entropy	0.99	0.76	0.78	0.78	0.82
Average class assignment probabilities	0.94–0.99	0.85–0.93	0.78–0.94	0.81–0.94	0.80–0.94

Notes. Profiles were estimated across three indicators of the peer motivational climate: Peers' task orientation, intra-team competition, and intra-team conflict. BIC = Bayesian Information Criterion. $^{*}p < 0.05$. $^{**}p < 0.01$.

Games-Howell post-hoc tests to determine which groups significantly differed from each other as the Games-Howell statistic does not assume equal variances across groups (Ruxton & Beauchamp, 2008).

5. Results

Consistent with the study goals, we first identified latent profiles of peer motivational climate. Next, we assessed mean differences across the profiles on the measures indexing each of the three levels of the PCA model: contributions to a better Self, better Teammates, and a better Game.

5.1. Latent profiles of peer motivational climate

We used LPA to identify latent profiles of athletes who varied across the three subscales of peer motivational climate: peers' task orientation, intra-team competition, and intra-team conflict. We estimated two- to six-profile solutions and determined that the six-profile solution fit the data best (see Table 2). The six-profile solution had the lowest sample size-adjusted BIC and the LMR test indicated that the six-profile solution fit significantly better than the five-profile solution. The six-profile solution also fit our theoretical expectations better than the five-profile solution; a profile emerged with higher scores on ego dimensions and lower scores on task orientation in the six-profile solution, but not the five-profile solution. For ease of reading, we labeled each profile and use that label (in quotations) throughout the results.

Three of the profiles in the six-profile solution aligned with our theoretical expectations (see Table 3). The first profile, labeled “mastery” (23% of the sample), perceived their teammates as having high task orientation and reported the lowest intra-team competition and conflict among the profiles. The second profile, labeled “ego-oriented” (5% of the sample), perceived teammates as having high (i.e., higher than the other profiles) intra-team competition and conflict, and had the lowest task-orientation. The third profile, labeled “task-ego-oriented” (7% of the sample), perceived their teammates as having high task orientations and relatively high intra-team competition and conflict.

The other three profiles were not specifically predicted based on prior research (see Table 3). One of these profiles, labeled “moderate task-ego” (43% of the sample), was similar to the “task-ego-oriented” profile, but with significantly lower scores on peer task orientation, intra-team competition, and intra-team conflict. The other two profiles were similar to each other in their patterns of task and ego-orientation, but differing quantitatively. One, labeled “moderate task-competition” (16% of the sample), consisted of athletes who had perceptions of moderate levels of task-orientation and intra-team competition with lower intra-team conflict than all other profiles except for the “mastery” profile. The other, labeled “high task-competition” (5% of the sample), consisted of athletes who had the highest perceptions of task-orientation and intra-team competition with relatively low intra-team conflict.

Table 3
Means for Peers' Task Orientation, Intra-team Competition, and Intra-team Conflict and Differences across Six Profiles of the Peer Motivational Climate.

Profiles	Task orientation	Intra-team competition	Intra-team conflict
	M (SD)	*M (SD)*	*M (SD)*
1. Mastery	4.49_{b} (0.41)	2.95_{a} (0.92)	1.54a (0.42)
2. Ego-oriented	2.36_{e} (0.53)	3.44_{b} (1.04)	3.80d (1.03)
3. Task-ego-oriented	4.00_{c} (0.23)	4.00_{c} (0.25)	4.03d (0.24)
4. Moderate task-ego	3.62_{d} (0.50)	3.35_{b} (0.50)	2.84c (0.50)
5. Moderate task-competition	3.98_{c} (0.41)	3.36_{b} (0.58)	2.06b (0.44)
6. High task-competition	4.94_{a} (0.09)	4.81_{d} (0.26)	3.07c (1.46)

Notes. ^{abcd}Subscripts indicate significantly different means within a column ($p < 0.001$), based on Scheffe's post-hoc tests; profiles with the same subscript are not significantly different from each other.

Table 4
Differences in Character Attributes Relevant to Self, Teammates, and Game across Six Profiles of the Peer Motivational Climate.

Profiles	*N*	Self						Teammates				Game			
		Diligence		Task		Ego		Leadership		Generosity		Moral disengagement		Honesty	
		M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*M*	*(SD)*
1. Mastery	135	3.66_{a}	(0.57)	4.32_{a}	(0.50)	2.50_{a}	(0.93)	4.28_{a}	(0.58)	4.06_{ab}	(0.63)	2.37_{a}	(0.07)	4.24_{a}	(0.83)
2. Ego-oriented	24	3.33_{bc}	(0.47)	3.97_{ab}	(0.73)	3.25_{b}	(1.03)	3.22_{b}	(1.24)	3.47_{bc}	(1.09)	2.74_{abc}	(0.22)	3.47_{c}	(1.07)
3. Task-ego-oriented	48	3.21_{c}	(0.37)	3.86_{b}	(1.02)	3.00_{ab}	(1.12)	3.54_{b}	(1.00)	3.76_{bc}	(0.77)	3.13_{c}	(0.13)	3.75_{abc}	(1.25)
4. Moderate task-ego	273	3.33_{bc}	(0.51)	4.09_{b}	(0.58)	3.00_{b}	(0.90)	3.88_{b}	(0.63)	3.76_{c}	(0.66)	2.77_{bc}	(0.05)	3.75_{b}	(0.85)
5. Moderate task-competition	124	3.47_{b}	(0.46)	4.05_{b}	(0.43)	2.72_{ab}	(0.91)	4.01_{b}	(0.42)	3.87_{bc}	(0.45)	2.60_{ab}	(0.07)	3.89_{abc}	(0.83)
6. High task-competition	36	3.38_{abc}	(0.69)	4.40_{ab}	(0.72)	3.30_{b}	(1.19)	4.67_{a}	(0.45)	4.45_{a}	(0.52)	3.20_{bc}	(0.23)	3.67_{abc}	(1.53)

Notes. ^{abcd}Subscripts indicate significantly different means within a column ($p < 0.001$), based on Games-Howell post-hoc tests; profiles with the same subscript are not significantly different from each other.

5.2. Associations between profile membership and self, team, and game measures

There was adequate evidence for high classification quality based on the class assignment probabilities (which were all above 0.80) and the high estimate of entropy (i.e., 0.82). Thus, we assigned athletes to profiles based on class assignment probabilities. We estimated mean differences across the profiles on the measures indexing PCA's model using ANOVA with Games-Howell post-hoc tests. The assumption of homogeneity of variance was violated for each of the outcome measures and, thus, we report the adjusted *F* statistics. We estimated separate ANOVAs for each outcome measure because we did not have justification to include the factors of the PCA model as a set. We used a conservative *p*-value of 0.001 to avoid Type I error inflation and report corresponding effect sizes (i.e., η^2). Throughout this section, "significantly different" refers to $p < 0.001$. For ease of reading, we report the means in Table 4 rather than in the text, and discuss the primary patterns of findings rather than presenting each comparison exhaustively. Findings are presented for each level of the PCA model of contributions to a better Self, better Teammates, and a better Game.

ANOVAs revealed mean differences across the profiles of peer motivational climate for each indicator of athletes' contributions to a better Self, including diligence (F (5, 632) = 9.30, $p < 0.001$; $\eta^2 = 0.07$), individual task orientation (F (5, 638) = 6.95, $p < 0.001$; $\eta^2 = 0.05$), and individual ego orientation (F (5, 638) = 8.05, $p < 0.001$; $\eta^2 = 0.06$). A few notable patterns emerged in the associations between profile membership and the Self measures. First, athletes on "mastery" teams had higher diligence than all other profiles except "high task-competition." Athletes on "mastery" teams also had higher task orientations than athletes on "task-ego-oriented," "moderate task-ego," and "moderate task-competition" teams. Finally, athletes on "mastery" teams had lower ego orientations than athletes on "ego-oriented," "moderate task-ego," or "high task-competition" teams. In sum, athletes on "mastery" teams (i.e., athletes who perceived having teammates with high task orientations and low ego orientations) made the greatest contributions to a better Self, whereas athletes on teams perceived as having high ego orientations made the least contributions to a better Self. Interestingly, intra-team competition *coupled with peers' high task orientations* was not detrimental for athletes' diligence or task orientations, but was detrimental for athletes' ego orientations. Thus, having peers with high task orientations was not always protective against the negative effects of peers' ego orientations on athletes' development.

There were also differences across profiles on contributions to better Teammates, as measured by leadership (F (5, 634) = 14.36, $p < 0.001$; $\eta^2 = 0.10$) and generosity (F (5, 633) = 6.15, $p < 0.001$; $\eta^2 = 0.05$). First, athletes on "mastery" and "high task-competition" teams had significantly higher leadership than all other profiles. Second, athletes on "high task-competition" teams had higher generosity than all other profiles, except for athletes on "mastery" teams; athletes on "mastery" teams had higher generosity than athletes on "moderate task-ego" teams, but were similar to all other profiles. In sum, athletes on "mastery" teams (i.e., athletes who perceived having teammates with high task orientations and low ego orientations) or "high task-competition" teams (i.e., athletes who perceived having teammates with high task orientations and high competition) made the greatest contributions to better Teammates. This pattern suggests that athletes who perceived having teammates with high ego orientations (regardless of levels of task) made the least contributions to Teammates, particularly when ego included high levels of conflict. That is, intra-team competition *without intra-team conflict* was beneficial for athletes' contributions to better Teammates.

Finally, we found differences across profiles on measures of improving the Game: moral disengagement (F (5, 625) = 9.52, $p < 0.001$; $\eta^2 = 0.08$) and honesty (F (5, 631) = 4.76, $p < 0.001$; $\eta^2 = 0.04$). First, athletes on "mastery" teams had higher honesty than athletes on "ego-oriented" and "moderate task-ego" teams. Athletes on "mastery" teams also had the lowest moral disengagement, such that athletes on "mastery" teams had lower moral disengagement than athletes on "task-ego-oriented," "moderate task-ego," and "high task-competition" teams. These findings suggest that the presence of ego-oriented teammates *regardless of their task orientations* was the most detrimental for athletes' contributions to a better Game. Thus, task orientation was not protective against the negative effects of peers' ego orientations on athletes' development at the level of the Game.

6. Discussion

Peer motivational climate is an important contributor to youth experiences in sport (Jõesaar et al., 2011; Smith et al., 2010; Vazou et al., 2005) and, although it is not an inevitable outcome of participation, youth sport may be linked to the development of character attributes (Coakley, 2011). Accordingly, the present study identified profiles of peer motivational climate among high school athletes and used the Positive Coaching Alliance (PCA) Triple-Impact Competitor® model to assess linkages between profiles of peer motivational climate and athlete contributions to improving Self, Teammates, and the Game. Our findings suggest that across all three levels, athletes perceiving mastery-oriented peer climates showed the most positive character and athletes perceiving ego-orientated peer climates, especially those involving intra-team conflict, demonstrated the least positive character.

Adolescent athletes in our sample were categorized into six profiles according to their perceptions of the peer motivational climate on their teams. These profiles ("mastery," "ego-oriented," "task-ego-oriented," "moderate task-ego," "moderate task-competition," and "high task-competition") were associated with differences in the demonstration of character attributes at all three levels of the PCA model (i.e., Self, Teammates, and Game). For improving the Self, indexed by measures of diligence and individual task and ego orientation, we found that individuals in the "mastery" profile (who perceived the lowest levels of ego-orientation among their teammates and high levels of task orientation) consistently demonstrated the most positive character. This finding aligns with Bandura's (1989) social cognitive theory; mastery-oriented peers may act as role models for positive character and athletes, when supported by others in doing so, may re-enact their peers' behaviors and, over time, may internalize their mastery beliefs. More research is needed, over longer periods of time, to test how athletes' re-enacting their peers' behaviors may translate into internalized beliefs.

With regard to improving Teammates, athletes in the "high task-competition" and "mastery" profiles reported the most positive character (as measured by leadership and generosity). The finding that the best Teammate support was found on teams with high levels of mastery combined with high competition aligns with the PCA model, which upholds the importance of competition through "striving together" in sport. When athletes approach competition as a partnership, rather than a battle, it can enhance character (e.g., Shields, Funk, & Bredemeier, 2017), whereas conflict through "striving against" can undermine the fun of the game and negatively impact both performance and psychosocial outcomes (Partridge & Knapp, 2016).

Finally, for improving the Game (measured by moral disengagement and honesty) athletes in the "mastery" profile again showed the most positive character. In line with some prior research (Miller et al., 2005), but in contrast with studies showing task orientation to have a protective effect (Duda, 1989; Hodge & Petlichkoff, 2000), high task orientation was not protective against the negative effects of peers' ego orientations, a finding that also emerged for contribution to Teammates. However, peer motivational climate was not as predictive of athlete outcomes at the Game level (many profiles showed no differences from all other profiles), perhaps because moral disengagement and honesty in sport are associated more with attributes of the coach and the larger social atmosphere of sport (Ntoumanis et al., 2012). In addition, moral disengagement is widespread in youth sport (Boardley & Kavussanu, 2007), so it is not surprising that peer motivational climate, although a useful predictor of character scores with regard to improving Self and Teammates, would not predict a significant proportion of the variance in character at the Game level.

In sum, findings from the present study suggest that coaches and sport programs seeking to help their adolescent athletes improve character at the level of the Self should promote a team climate featuring high task orientation and low ego orientation. To help improve relations among athletes and help them support their Teammates our data show value in competition, while intra-team conflict should be diminished. How athletes perceive their peers' motivational climate matters at all three levels (Self, Teammates, and Game), but most of all at the level of contributing to Teammates. More work is needed to learn how to apply this knowledge in practice. One solution (supporting th PCA model) would be to teach adolescent athletes to be competitive without causing conflict among teammates and without contributing to their ego orientation. More research is needed on these interpersonal processes and how to extend this positive approach to competition (Shields et al., 2017) to opponents as well as teammates.

6.1. Limitations and future directions

The present study has several limitations that should be noted. First, due to the cross-sectional nature of the data we did not report on the extent to which peer motivational climate may be causally or developmentally related to athlete character or assess athlete task- and ego-orientation prior to their joining the team in which we measured their perceptions of peer motivational climate. Future studies should include longitudinal assessments and/or experimental manipulations to further explore the direction of influence between peer climate and athlete character.

In addition, the study lacked measures of other characteristics of the team environment, including coach characteristics and team win/loss records, which could have provided a more detailed picture of the contextual influences on athlete character. Future studies should disentangle peer influences from the effects of other factors. A strength of the present study was its ability to show the extent of variation in how adolescent athletes perceive their peers, even within the same team, but future research should also use more objective measures of the peer climate (e.g., observation) to assess how peer behaviors relate to individual perceptions and the relative impact of each on athlete character attributes. This type of study could also address the question of what team-level and individual factors lead young athletes to perceive more mastery- or ego-oriented peer motivational climates.

7. Conclusions

Sport can provide opportunities for adolescent athletes to develop and demonstrate character, but these contexts are not

guaranteed to support beneficial outcomes. As shown in the present study, athletes' demonstration of character may be linked to their perceptions of the motivational climate of their team, with athletes perceiving a mastery-oriented peer climate being most likely to exhibit positive character with regard to themselves, their teammates, and the game. The present study also demonstrates the utility of practitioner-developed models: the Positive Coaching Alliance model, used to measure character development in the three key domains of Self, Teammates, and Game, provided nuanced and practice-relevant results.

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