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ATHLETICS

Examination of Social Influence Toward Need Satisfaction of High School Student-Athletes

Michael Fraina, Donna Pastore,
Dawn Anderson-Butcher, Tarkington Newman

Abstract

This study explored the independent and interactive effects of coach and peer influence on psychological need satisfaction (i.e., autonomy, competence, relatedness) among high school student-athletes from urban communities. Male and female student-athletes participating in high school sport (n = 136) completed a paper-pencil survey related to their perceptions of autonomy, competence, and relatedness, and the degree of social support received from their coaches and peers. Three hierarchical regression analyses for each psychological need were conducted. The greatest amount of variability in autonomy was predicted by coach autonomy support (R^2 change = .275). The set of demographic variables (i.e., gender, race/ethnicity, socioeconomic status, type of sport) predicted the greatest amount of variability in competence (R^2 change = .184). The largest amount of variability in relatedness was predicted by peer relatedness support (R^2 change = .181). Among the three models, only relatedness was significantly predicted by the interaction of coach relatedness support and peer relatedness support (R^2 change = .037, p = .003). This study sheds light on independent

Michael Fraina, Department of Sport Management, Farmingdale State College. Donna Pastore, Department of Human Sciences, The Ohio State University. Dawn Anderson-Butcher, College of Social Work, The Ohio State University. Tarkington Newman, Department of Social Work, University of New Hampshire. Please send author correspondence to frainam@farmingdale.edu

and interactive relationships among coaches and peers and their connections to need satisfaction.

Within the United States, high school sport programs are designed to enrich the educational experience; encourage academic achievement; promote integrity, respect, and sportsmanship; and encourage enjoyment (National Federation of State High School Associations, 2016). Sport, which has become a popular developmental activity, involves "organized, recreational, and skillful physical activity that has an element of competition" (Anderson-Butcher, 2011, pp. 2835–2836). A recent systematic review revealed that adolescent sport participation promotes psychological (e.g., life satisfaction, self-control, self-esteem) and social (e.g., sportsmanship, teamwork) outcomes (Eime et al., 2013). Participation in high school sport may be particularly beneficial for adolescents living in urban communities. Notably, Riley and Anderson-Butcher (2012) reported that sport participants from urban communities realized the largest gains in social development indicators. Sport can seemingly provide a beneficial social context for adolescents from urban communities, offering an environment that can counteract some of their increased risk factors. Therefore, it seems beneficial to garner a fuller understanding and improve conditions for those in urban communities.

However, despite empirical evidence supporting the value of high school sport participation, the psychological and social benefits of participating in sport are not frequently realized. Several factors may contribute to the benefits of participation in sport not being reached. Many youth do not participate and/or continue their involvement into the adolescent years. For instance, Nache et al. (2005) observed that sport dropout rates among high school athletes approach 35% annually. Nationally, from 2007 to 2011, adolescent participation rates in wrestling, cheerleading, and touch football decreased between 26.8% and 40% (Sporting Goods Manufacturers Association, 2011). Brownson et al. (2005) reported that the percentage of physically inactive adolescents rose from 24.3% to 38.9% over the course of their high school career. Troiano et al. (2008) observed that only 8% of adolescents in the United States met the recommendation of 60 min/day of physical activity provided by the Centers for Disease Control and Prevention. Meanwhile, the rate of youth who met the

exercising recommendation was 42% (Troiano et al., 2008). Based on these statistics, the amount of individuals who exercise 60 min/day dropped by approximately 34% from youth to adolescence. Therefore, it is reasonable to surmise that the large population of adolescents who are discontinuing sport participation are not reaping the documented benefits.

A more concerning consequence is that lack of sport participation and physical activity may manifest in other negative occurrences. Physical activity has often been replaced by sedentary behaviors. Kann et al. (2016) determined that 24.7% of adolescents watch a minimum of 3 hr of recreational television daily. Furthermore, national obesity rates among the adolescent population have risen from 10.5% to 20.6% between 1988 and 2014 (Ogden et al., 2016). Obesity rates are increasing more rapidly among adolescents than any other demographic (Ogden et al., 2016). Based on these findings, high school students commonly fail to reap the benefits of sport participation.

In addition to systematic risk factors such as poverty and exposure to neighborhood violence, adolescents from urban communities face escalated challenges that often limit their engagement in sport. According to the Youth Risk Behavior Surveillance System, sport participation is lowest among adolescents from minority populations in urban communities (Centers for Disease Control and Prevention, 2016). Whereas 37.6% of White high school student-athletes did not play on at least one sports team in 2016, this percentage was higher among Black (42.4%) and Hispanic (51.5%) individuals. Holt et al. (2011) found that the most common barriers to sport participation among parents and high school students from lower income neighborhoods were time management, scheduling demands, and financial barriers. Parents especially identified that the weight of the financial barriers increased as their children progressed to more competitive environments.

In recent decades, scholars and practitioners have sought to identify factors that promote and diminish high school sport participation. A key strategies that studies have used to understand sport participation and dropout rates is the assessment of athletes' levels and types of motivation toward the activity. Self-determination theory (SDT; Deci & Ryan, 2000) has emerged as a widely utilized

theory toward examination of sport-based motivation. SDT suggests that motivation toward an activity exists along a continuum involving amotivation, extrinsic motivation, and intrinsic motivation (Deci & Ryan, 2000). Amotivation refers to a lack of motivation toward a particular activity, in which the participant is susceptible to discontinuing involvement (Deci & Ryan, 2000). Extrinsic motivation is the completion of an activity due to an external locus of control (e.g., pressure, pursuit of rewards; Deci & Ryan, 2000). Intrinsic motivation refers to participation in an activity due to genuine enjoyment of the pursuit (Deci & Ryan, 2000). The essential hypothesis of SDT is that intrinsic motivation is most positively correlated with positive physical and psychological outcomes. Since 2002, 47 studies have employed the theoretical framework of SDT within the domain of sport and recreation. However, a limited amount of studies (e.g., Amorose et al., 2016; Riley & Smith, 2011) have studied the topic solely with a sample of high school student-athletes in the United States.

Research adopting SDT to measure motivation in the context of sport has consistently shown support for the theory. Gucciardi and Jackson (2013) observed that high school and college athletes' levels of intrinsic motivation were associated with continued sport participation. Additionally, Amorose et al. (2009) reported a positive correlation between intrinsic motivation and well-being among female club volleyball players aged 13 to 18. Conversely, Sarrazin et al. (2002) detected that adolescent handball players who perceived a profile of amotivation were less persistent toward sport participation.

To more specifically measure psychological need satisfaction, Deci and Ryan (2000) also crafted basic psychological needs theory (BPNT). As a subtheory of SDT, BPNT purports that an individual's placement on the motivational continuum is determined by satisfaction of the basic psychological needs of autonomy, competence, and relatedness. Autonomy involves a person's ability to act of their own volition (Deci & Ryan, 2000). The theory classifies competence as "a propensity to have an effect on the environment as well as to attain valued outcomes within it" (Deci & Ryan, 2000, p. 231). It explains relatedness as "the desire to feel connected to others" (Deci & Ryan, 2000, p. 231). Studies related to sport have supported the

tenets of BPNT, similar to the overall theory of SDT. Mack et al. (2011) determined that perceived satisfaction of the needs for autonomy, competence, and relatedness promoted well-being among college volleyball players. Autonomy has also been associated with increased sportspersonship and diminished antisocial attitudes in a sample of club sport participants (Ntoumanis & Standage, 2009).

Commonly, scholars have employed SDT and/or BPNT to examine the influence of key social agents (i.e., parents/caregivers, coaches, peers) on athletes' levels of motivation. Research has indicated that influence from parents/caregivers (e.g., Fredricks & Eccles, 2005), coaches (e.g., Amorose & Anderson-Butcher, 2007), and peers (e.g., Jõesaar et al., 2012) is the foremost indicator of motivation among adolescent athletes. The following paragraph offers research conclusions related to the influence of these three social agents toward athletes' levels of psychological need satisfaction.

A variety of research initiatives have uncovered the influence of parents. Fredricks and Eccles (2005) observed that parents' perceptions of their child's athletic competence were significantly correlated with the athlete's competence beliefs. Additionally, need support from parents has been correlated with vitality, positive affect, self-esteem, performance self-concept, and skill self-concept (Felton & Jowett, 2013). Other studies have focused on the outcomes attributed to coach influence. High school and college athletes' perceptions of autonomy, competence, and relatedness were significantly predicted by coach autonomy support (Amorose & Anderson-Butcher, 2007). Furthermore, need support from coaches has been linked to increased intrinsic motivation (Sheldon & Watson, 2011) and reduced fear of failure (Coatsworth & Conroy, 2009). Scholars have also explored the influence of peers. Jõesaar et al. (2012) discerned that 362 high school–aged athletes in club sports associated positive peer motivational climates with intrinsic motivation. Additionally, Gucciardi and Jackson (2013) noted that psychological need support from peers is associated with future sport participation.

Recently, research has also begun to examine the influence of the interaction of key social agents. For example, Amorose et al. (2016) observed the three-way interaction of coach autonomy support, mother autonomy support, and father autonomy support. The interaction of these key social agents was significant toward male

and female high school student-athletes' levels of need satisfaction. Additionally, Ullrich-French and Smith (2009) investigated the influence of the interaction among mother relationship quality, peer acceptance, and friendship quality among travel soccer players. The interaction of these key social agents significantly predicted athletes' levels of motivation. The Riley and Smith (2011) study did not detect a significant interaction among athlete–coach relationship, peer acceptance, positive friendship quality for high school basketball players in the Midwestern United States. The majority of participants in the Riley and Smith study (89%) were White and were younger (between 12 and 15) than participants in this study. The other difference in this study is the focus on autonomy, competence, and relatedness rather than acceptance and friendship quality. These research initiatives demonstrate the value of incorporating the exploration of both independent effects and interactive effects of support received from multiple social sources.

However, although the aforementioned studies have uncovered great detail into the process of sport socialization, few attempts have measured the interactive effects of multiple sources of social influence. Moreover, only two studies (i.e., Amorose et al., 2016; Riley & Smith, 2011) have examined motivation among interscholastic student-athletes in the United States. Also, as articulated by Riley and Anderson-Butcher (2012), examination of need satisfaction in the context of athletics has rarely extended to urban communities. In summary, the three foremost gaps of literature that remain are research involving measurement of interaction among several sources of social influence, motivation of high school student-athletes in the United States, and sport experiences of athletes from urban communities.

Research has illustrated that key social agents, especially coaches, peers, and parents, are influential toward need satisfaction of athletes. Although studies have attempted to measure the independent examples of one of these social agents, few have explored the interactive effects of multiple social agents. Also, many of these studies have failed to incorporate a diverse sample population and have rarely addressed the venue of high school athletics. Therefore, utilizing the theoretical framework of BPNT, this study measured the

(a) independent effects and (b) interactive effects of coach and peer influence toward need satisfaction of high school student-athletes in urban communities. Four research questions guided this study:

1. What are overall perceptions of psychological need satisfaction (i.e., autonomy, competence, relatedness) among high school student-athletes from urban communities?
2. What are the (a) main effects and (b) interactive effects of coach autonomy support and peer autonomy support toward perceived autonomy among high school student-athletes from urban communities?
3. What are the (a) main effects and (b) interactive effects of coach competence support and peer competence support toward perceived competence among high school student-athletes from urban communities?
4. What are the (a) main effects and (b) interactive effects of coach relatedness support and peer relatedness support toward perceived relatedness among high school student-athletes from urban communities?

Method

Procedures

Our university institutional review board (IRB) granted approval for this study. Following IRB approval, through a convenience sample, Michael Fraina contacted via email 38 district coordinators representing high schools in urban locations in the Midwestern United States. Five district coordinators offered approval for the study within their school districts. Thereafter, school principals and athletic directors at each affiliated institution were asked to participate in the study. An initial email was sent to all principals and athletic directors, and one follow-up phone call was completed to each athletic director who did not respond. The study was conducted only at locations in which the principal and athletic director signed a written document of approval. In total, eight sets of principals and athletic directors consented for willing athletic teams to participate. Once the principal had signed the letter of approval, the school's athletic director provided Fraina with a list of sport coaches.

Fraina then contacted via email the head coaches for all teams within approved high schools to explain the study and request participation. Data collection dates were scheduled with coaches who offered verbal approval for study involvement among their athletes. At an initial meeting, during a regularly scheduled practice session, assent and parental consent forms were distributed. At a future date, all necessary forms were collected and participants with proper documentation completed the study. In total, 144 high school student-athletes across eight institutions completed the survey. Survey completion lasted between 15 and 20 min, during which coaches left the survey area.

Participants

Although 144 student-athletes completed the survey, there was missing data from eight participants. On the basis of the minimal percentage of missing data, the listwise deletion method (Cohen et al., 2003) was utilized. This resulted in the elimination of the eight participants who had missing data. As such, the final sample for the study was 136 participants, which included high school student-athletes from urban communities in the Midwestern United States. According to the U.S. Census, urban areas maintain higher levels of poverty. Approximately 16% of residents in urban communities live below the poverty level, nearly 3 percentage points higher than in rural areas. Furthermore, 42 states held higher rates of poverty in urban locations than rural areas (U.S. Census Bureau, 2017). Each of the high schools recruited for the study was categorized as being located in an urban area. The sample consisted of male (n = 102) and female (n = 34) student-athletes from a variety of individual sports (i.e., cross country, track and field, golf) and team sports (i.e., football, lacrosse, soccer, basketball, baseball, softball, volleyball, field hockey, cheerleading). All student-athletes actively participating in a spring sport through their high school were eligible to complete the study. The largest amount (n = 102) of participants self-identified as White/Caucasian, followed by 22 Black/African American, 10 mixed race, 1 Hispanic, and 1 Native American. In terms of socioeconomic status, 93 paid full price for lunch, 29 were enrolled in the free or reduced lunch program, and 14 were unsure of their status.

Measures

Independent Variables

Coach and Peer Autonomy Support. The perceived level of autonomy support received from both coaches and peers was assessed via the six-item version of the Sport Climate Questionnaire (SCQ). Although the author(s) of the SCQ were not identifiable, the scale is available on https://selfdeterminationtheory.org/pas-sport-climate/. The initial form of the scale refers to the social agent as "physical education (PE) teacher." In this study, all references of "PE teacher" were modified to either "coach" or "peer." Response options to the SCQ included a 7-point Likert scale, in which higher responses corresponded with greater perceptions of autonomy support from coaches and peers. Sample items for the coach autonomy support scale included (a) "I feel that my coach provides me choices and options" and (b) "I feel understood by my coach." Related to peer autonomy support, items included (a) "I feel that my peers provide me choices and options" and (b) "My peers convey confidence in my ability to do well in athletics." The Cronbach's alpha level of the SCQ was .928, indicating an acceptable level of reliability.

Coach and Peer Competence Support. Participants' perceptions of the level of competence support provided by coaches and peers were measured through the four-item need support scale developed by Standage et al. (2005). As the scale was designed to measure competence support provided by the PE teacher, all references of "PE teacher" were replaced with either "coach" or "peer." Higher responses on the aforementioned need support scale, measured through a 7-point Likert scale, indicate greater perceptions of competence support received from coaches and peers. Within the coach competence support scale, sample items included (a) "My coach helps me improve at sports" and (b) "My coach makes me feel like I am good at sports." Sample items for peer competence support included (a) "My peers help me improve at sports" and (b) "I feel that my peers like me to do well at sports." The Cronbach's alpha level of the Standage et al. (2005) competence support scale was .923, demonstrating an acceptable level of reliability.

Coach and Peer Relatedness Support. Similarly, perceived coach relatedness support and peer relatedness support were measured through Standage et al.'s (2005) need support scale. Each scale

contained five items. As the scale was originally intended to measure relatedness support received from PE teachers, this terminology was changed to "coach" or "peer." For each 7-point Likert scale developed in the need support scale (Standage et al., 2005), elevated responses illustrated higher perceptions of relatedness support received from coaches and peers. Sample items pertaining to coach relatedness support included (a) "My coach supports me playing sports" and (b) "My coach encourages me to work with others when playing sports." In terms of peer relatedness support, items included (a) "My peers support me playing sports" and (b) "My peers have respect for me." Standage et al.'s (2005) relatedness support scale generated a Cronbach's alpha level of .925, indicating an acceptable level of reliability.

Demographic Variables

Four demographic variables were measured through the survey. Participants indicated whether they were male or female. Six options were provided for race/ethnicity: White/Caucasian, Black/African American, Hispanic, Asian/Pacific Islander, Native American, or Mixed Race. Student-athletes identified whether they received free or reduced lunch or they were unsure. The final demographic variable was type of sport, for which respondents indicated the sports in which they participated. Classification of the type of sport (i.e., individual, team) was consistent with the approach adopted by Hutchinson (2014). Cross country running, track and field, and golf were coded as individual sports, whereas team sports consisted of football, lacrosse, soccer, basketball, baseball, softball, volleyball, field hockey, and cheerleading.

Dependent Variables

Psychological Need Satisfaction (Autonomy, Competence, Relatedness). Student-athletes' perceptions of autonomy, competence, and relatedness constituted the three dependent variables and were assessed through subscales of the 15-item Basic Needs Satisfaction in Sport Scale (BNSSS; Ng et al., 2011). In the Ng et al. (2011) study, the alpha coefficients of autonomy, competence, and relatedness were .83, .87, and .80, respectively. Each psychological need (i.e., autonomy, competence, relatedness) was measured through a five-item subscale. All 15 items from the BNSSS were

evaluated through a 7-point Likert scale, on which higher responses indicated enhanced perceptions of need satisfaction. Examples of autonomy measures included (a) "In my sport, I get opportunities to make choices" and (b) "In my sport, I have a say in how things are done." Sample competence items included (a) "I can overcome challenges in my sport" and (b) "I am skilled at my sport." Relatedness was evaluated through items such as (a) "In my sport, I feel close to other people" and (b) "I show concern for others in my sport." The method of calculation for each variable was the sum of scores method, in which the possible score for each subscale ranged from 5 to 35. In this study, the Cronbach's alpha levels for autonomy, competence, and relatedness were .915, .916, and .907, respectively.

Data Analyses

Data were inputted via IBM SPSS version 21. Prior to data analysis, we accounted for missing data and tested for necessary assumptions. The listwise deletion approach toward missing data, as recommended by Cohen et al. (2003), resulted in elimination of eight cases. Statistical tests for the assumptions of independence, homogeneity of variance, linearity, normality, and multicollinearity were conducted. It appeared that there were no violations of these assumptions.

The preliminary research question, investigating student-athletes' perceptions of psychological need satisfaction, were tested through descriptive statistics. The main analyses, examining the influence of coaches and peers toward student-athletes' perceptions of need satisfaction, were measured through three hierarchical regression analyses. The demographic variables (i.e., gender, race/ethnicity, socioeconomic status, type of sport) were entered at Block 1 in each analysis related to autonomy, competence, and relatedness. At Block 2, the independent effects of either coach autonomy support, coach competence support, or coach relatedness support were entered to predict their related psychological need. The independent effects of (a) peer autonomy support, (b) peer competence support, and (c) peer relatedness support were added at Block 3 to determine student-athletes' perceptions of (a) autonomy, (b) competence, and (c) relatedness. The interaction effects (Coach × Peer Influence) were entered at Block 4 to predict student-athletes' levels of autonomy, competence, or relatedness. Based on the recommendations of

Aiken and West (1991), all predictor variables were centered and the interaction terms were calculated as a product of the centered variables.

Results

Psychological Need Satisfaction

The first research question was designed to investigate athletes' perceptions of psychological need satisfaction. The extent to which athletes perceived their psychological needs to be satisfied was measured through mean scores of autonomy, competence, and relatedness; item ranges; standard deviation rates; and variable correlations. Table 1 shows these descriptive statistics. The purpose of assessing these values was to determine whether this population of high school athletes maintained high levels of need satisfaction. On the basis of the mean scores, athletes generally held high perceptions of autonomy, competence, and relatedness. Among levels of need satisfaction, perceived relatedness slightly exceeded competence and strongly rated above autonomy. Specifically, each variable allowed for ranges between 5 and 35, with the mean scores of relatedness, competence, and autonomy being 30.30, 29.65, and 24.70, respectively.

Table 1
Descriptive Statistics (N = 136)

Variable	Range	*M*	*SD*
Autonomy	5–35	24.70	7.01
Competence	5–35	29.65	4.89
Relatedness	5–35	30.30	4.77
Coach Autonomy Support	6–42	31.96	8.15
Coach Competence Support	4–28	23.68	5.15
Coach Relatedness Support	5–35	30.12	6.01
Peer Autonomy Support	6–42	32.95	6.74
Peer Competence Support	4–28	23.29	4.31
Peer Relatedness Support	5–35	29.85	4.97
Valid *N* (listwise)			

Note. The final sample size was determined following the listwise deletion approach to address missing data (Peugh & Enders, 2004).

Table 2 provides correlations among variables. Satisfaction among all psychological needs (i.e., autonomy, competence, relatedness) was positively related. All measures of need support from coaches and peers were positively correlated with need satisfaction. The strongest positive correlations were between autonomy and coach autonomy support (r = .66) and between relatedness and peer competence support (r = .66). One of the weakest positive correlations (r = .24) was between competence and coach competence support.

Table 2
Correlations

Variable	1	2	3	4	5	6	7	8	9
1. Auto	1								
2. Comp	.35*	1							
3. Relat	.42*	.51**	1						
4. CAS	.66*	.26**	.35**	1					
5. CCS	.61*	.24**	.45**	.73**	1				
6. CRS	.65*	.22*	.45**	.79**	.83*	1			
7. PAS	.40*	.55**	.51**	.49**	.27*	.29*	1		
8. PCS	.48*	.50**	.66**	.34**	.48*	.41*	.64**	1	
9. PRS	.35*	.52**	.60**	.42**	.32*	.39*	.72**	.70**	1

Note. Auto = autonomy; Comp = competence; Relat = relatedness; CAS = coach autonomy support; CCS = coach competence support; CRS = coach relatedness support; PAS = peer autonomy support; PCS = peer competence support; PRS = peer relatedness support.

*Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).

Influence of Coaches and Peers

Three hierarchical regression analyses examined the independent and interactive influences of coaches and peers on the psychological need satisfaction of athletes.

The second research question measured the influence of coach autonomy support and peer autonomy support on perceived

autonomy. Block 1 introduced the demographic variables (i.e., gender, race/ethnicity, socioeconomic status, type of sport). Block 2 added the independent effects of coach autonomy support. Block 3 added the independent effects of peer autonomy support. Block 4 added the interaction of Coach Autonomy Support × Peer Autonomy Support. Table 3 offers the model summary of this regression analysis. Individually, coach autonomy support explained the largest amount of variance toward autonomy (R^2 change = .275, $p < .001$). However, as the unique component of this study, the interaction of Coach Autonomy Support × Peer Autonomy Support did not significantly increase the amount of variance explained (R^2 change = .006, $p = .236$).

Table 3
Model Summary: Autonomy

Model	*R*	R^2	Adj. R^2	R^2 change	*F* change	*df*1	*df*2	Sig. *F* change
1	.445	.198	.148	.198	3.92	8	127	< .001
2	.688	.473	.435	.275	65.63	1	126	< .001
3	.692	.479	.437	.006	1.45	1	125	.236
4	.699	.488	.442	.009	2.26	1	124	.136

Note. Block 1 includes Gender, Race/Ethnicity, Socioeconomic Status, and Type of Sport. Block 2 includes Coach Autonomy Support. Block 3 includes Peer Autonomy Support. Block 4 includes Coach × Peer Autonomy Support.

The second hierarchical regression analysis, addressing in the third research question, pertained to the influence of coach competence support and peer competence support on athletes' perceptions of competence. Block 1 introduced the demographic variables (i.e., gender, race/ethnicity, socioeconomic status, type of sport). Block 2 added the independent effects of coach competence support. Block 3 added the independent effects of peer competence support. Block 4 added the interaction of Coach Competence Support × Peer Competence Support. As Table 4 shows, the demographic variables of gender, race/ethnicity, socioeconomic status, and type of

sport explained the largest amount of the variance in competence (R^2 change = .184, p = .001). Unlike the analysis of autonomy, this analysis showed that the presence of coach competence support explained a small amount of variance toward perceived competence (R^2 change = .03, p = .03), whereas the independent effects of peer competence support was more predictive (R^2 change = .162, p < .001). Again, the two-way interaction of Coach Competence Support × Peer Competence Support did not uniquely explain a significant amount of the variability in perceived competence (R^2 change = .001, p = .662).

Table 4
Model Summary: Competence

Model	*R*	R^2	Adj. R^2	R^2 change	*F* change	*df*1	*df*2	Sig. *F* change
1	.429	.184	.132	.184	3.57	8	127	.001
2	.462	.214	.158	.03	4.83	1	126	.03
3	.613	.376	.326	.162	32.47	1	125	< .001
4	.614	.377	.322	.001	.19	1	124	.662

Note. Block 1 includes Gender, Race/Ethnicity, Socioeconomic Status, and Type of Sport. Block 2 includes Coach Competence Support. Block 3 includes Peer Competence Support. Block 4 includes Coach × Peer Competence Support.

The fourth research question corresponded to the influence of coach relatedness support and peer relatedness support on athletes' levels of relatedness. Block 1 commenced with the four demographic variables (i.e., gender, race/ethnicity, socioeconomic status, type of sport). Block 2 provided the independent effects of coach relatedness support. Block 3 contributed peer relatedness support. The interaction of Coach Relatedness Support × Peer Relatedness Support was examined in Block 4. Table 5 presents the results from the relatedness regression analysis. Among the four blocks, the largest amount of explained variance was through peer relatedness support (R^2 change = .181, p < .001). This analysis was the only in which the influence of coaches and peers were similar, with coach relatedness support explaining 16.9% (p < .001) of the variance in

relatedness. The model associated with relatedness was also the sole inquiry that resulted in a statistically significant interaction effect (R^2 change = .037, p = .003). Although the results indicated a statistically significant interaction effect, the 3.7% of variability would not seem to produce practical significance.

Table 5
Model Summary: Relatedness

Model	*R*	R^2	Adj. R^2	R^2 change	*F* change	*df*1	*df*2	Sig. *F* change
1	.344	.119	.063	.119	2.13	8	127	.037
2	.536	.287	.236	.169	29.82	1	126	< .001
3	.684	.468	.425	.181	42.34	1	125	< .001
4	.711	.505	.461	.037	9.34	1	124	.003

Note. Block 1 includes Gender, Race/Ethnicity, Socioeconomic Status, Type of Sport. Block 2 includes Coach Relatedness Support. Block 3 includes Peer Relatedness Support. Block 4 includes Coach × Peer Relatedness Support.

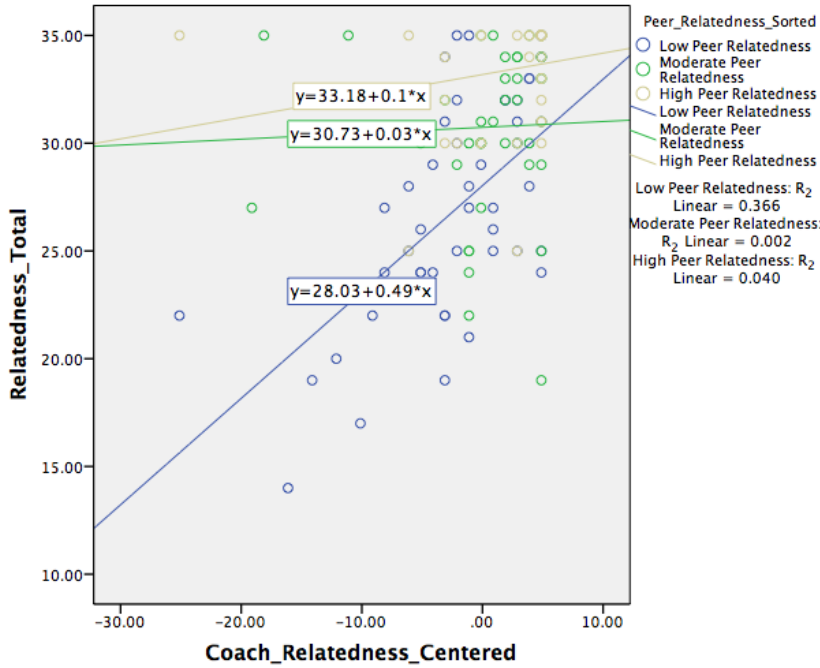
As the interaction of Coach Relatedness Support × Peer Relatedness Support was the only significant result, the regression lines were plotted and examined, as recommended by Aiken and West (1991). Through this approach, levels of peer relatedness support were distinguished into groups of low peer relatedness, moderate peer relatedness, and high peer relatedness. As Figure 1 shows, the correlation between relatedness and coach relatedness support was .60 for athletes with low peer relatedness support. For those with moderate peer relatedness support, the correlation between relatedness and coach relatedness support was .04. The correlation between relatedness and coach relatedness support was .20 for athletes perceiving moderate peer relatedness support.

Discussion

This study examined the independent and interactive influences of coaches and peers on need satisfaction among high school athletes from urban communities. Through descriptive statistics, athletes' perceptions of need satisfaction were assessed. Ratings of

Figure 1

Regression Lines of Relatedness



relatedness and competence substantially exceeded those of autonomy. The pattern of these responses garnered similarities to those in similar studies conducted by Amorose and Anderson-Butcher (2007) and Riley and Smith (2011). The results in relation to need satisfaction seem to indicate that participants in interscholastic athletic programs feel socially connected to those around them and hold high valuations of their athletic abilities. However, they may not be provided sufficient opportunity to act of their own volition. This may be concerning, as Jõesaar et al. (2011) observed that autonomous athletes were more persistent toward athletic competition and Mack et al. (2011) concluded that increased autonomy was associated with vitality and positive affect. Thus, the findings would support efforts through which high school athletic programs promote satisfaction more consistently to foster overall motivation.

Further, in terms of autonomy support, findings emphasize the importance of coach autonomy support. In fact, among each of the three hierarchical regression analyses, coach autonomy support predicted the largest amount of variance toward its associated outcome variable. Meanwhile, peer autonomy support did not explain a significant amount of the variance in autonomy. Seemingly, athletes in this study value autonomy support from their coaches but may perceive that satisfaction of the need for autonomy is lacking. Within the realm of sport, this could include allowing the athletes options in drills, scrimmages, or practice times. Although interscholastic athletes lean toward an autocratic approach, the results support the benefits for coaches to incorporate elements of democracy. Perhaps high school coaches should be required to complete workshops in which they learn methods to provide autonomy support to their athletes. As peer autonomy support was not linked to perceived autonomy, these findings suggest a limited amount of worth in educating athletes about how to offer autonomy support to their teammates.

Conversely, peer competence support was more predictive of athletes' perceptions of competence than was coach competence support. The minimal correlation of coach competence support toward athletes' levels of perceived competence was likely the most surprising result of this study. As this observation does not align with the findings of Standage et al. (2005) and Viira and Koka (2012), further investigation of this topic is necessary. Meanwhile, the strong results of peer competence support highlight the merit of this behavior. This finding highlights the imperative nature of creating environments of peer competence support. Perhaps, administrators and coaches could provide acknowledgment or rewards to athletes who congratulate and foster self-confidence among their teammates.

The final analysis yielded conclusions toward the influence of coach and peer relatedness support. Unlike the other models in this study, the relatedness model produced significant levels of prediction from both coaches and peers and their interaction. Essentially, these high school athletes based their level of social connectedness on their relationships with coaches and peers. As results demonstrated that participants indicated relatively high perceptions of satisfaction of the need of relatedness, programs must continue to promote backgrounds of relatedness support. As the interaction of

coach relatedness support and peer relatedness support was the only significant interaction, the regression lines were analyzed. For athletes with a high level of peer relatedness support, the effect of coach relatedness support lessened. Thus, athletes' psychological needs can be satisfied by either of the social agents.

Although this study yielded conclusions related to motivation and social influence within high school sport, it has some limitations. The cross-sectional design limits the ability to determine causality of the relationships. Perhaps, athletes' perceptions of psychological need satisfaction affected the level of social influence received from coaches and peers. Additionally, athletes were asked to reflect upon their relationships with coaches and peers during the current season. However, a large percentage (89 of 136 athletes) participated in multiple sports. This result creates the potential that athletes could attribute relationships to previous seasons. Also, the scope of variable selection was limited to the basic psychological needs of autonomy, competence, and relatedness and social influence from coaches and peers. This strategy limits the ability to determine other sources of motivation and potential alternative sources of socialization.

There are numerous compelling areas for future research of motivation among competitive athletes. Longitudinal analysis of the temporal properties of coach and peer influence could provide a more thorough representation of their effects on the athletes. Further exploration of other social sources, especially from parents/caregivers could also offer a more comprehensive assessment of interpersonal socialization. Additionally, measurement of the influence of need satisfaction toward actual participation is warranted.

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