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The Coach-Athlete Relationship and NCAA Student-Athlete Satisfaction

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The quality of the coach-athlete relationship has a profound impact on athletes' experiences in sport. Although this topic has received increasing attention worldwide, few studies have investigated this phenomenon among NCAA student-athletes. The purpose of this non-experimental study was to determine if NCAA student-athlete perceptions of coach-athlete relationship quality had a predictive relationship with their ratings of athlete satisfaction. 387 NCAA student-athletes completed measures of coach-athlete relationship quality and athlete satisfaction. Respondents indicated generally positive perceptions of their relationship with their coach and reported moderately high satisfaction levels. The coach-athlete relationship was linked with athlete satisfaction, and regression analyses indicated that the quality of the relationship significantly predicted ratings of athlete satisfaction. Notable differences between sport types and competition levels provided evidence for context-driven approaches to enhancing the coach-athlete relationship. Results suggest that sports coaches, the NCAA, and coach education outlets may be able to enhance their athletes' sporting experiences by engaging in professional development aimed at fostering healthy relationship skills.

Keywords: coach-athlete dyad, coaching, interdependence, collegiate athlete, athlete satisfaction

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In the ever-changing climate of intercollegiate athletics, student-athletes continue to face unique obstacles (Brown et al., 2022; Gayles et al., 2018). As these individuals near the end of their high school careers, they look toward college as the next logical step in their development. Many factors, including location, academics, reputation, and cost, influence students' decisions when choosing a specific university. Unlike most senior high school students, however, college-bound student-athletes must consider an additional, and equally crucial, element when choosing which school to attend. That consideration is found in one of the most influential individuals in student-athletes' careers: their coach (Ayer, 2015).

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Throughout the recruiting process, student-athletes interact regularly with would-be coaches. Oftentimes, a decision to attend a college is based on the student-athletes' impressions of the coach (Garbert et al., 1999; Nixon et al., 2021). Put another way, the quality of the interpersonal relationship carries great weight in the student-athletes' decision. Moreover, the nature of the coach-athlete relationship may have a profound impact on the student-athlete throughout their career. Unfortunately, little is known about many aspects of the coach-athlete relationship in NCAA student-athletes and their effects on student-athlete satisfaction and well-being. This study aims to shed light on this knowledge gap.

The Coach-Athlete Relationship

Interactions between coaches and athletes are widely recognized as an important antecedent to both positive and negative sport outcomes (Choi et al., 2013; Jin et al., 2022; Jowett, 2003; Lafreniere et al., 2011; Poczwardowski et al., 2006). Moreover, the importance of the coach-athlete relationship has long been acknowledged at all levels of sport, from youth (Barnett et al., 1992) to elite international competition (Jowett & Cockerill, 2003). Due to its centrality in the athletic domain, this interpersonal dyad has garnered attention, as scholars have called for a more extensive analysis

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of the topic (Poczwardowski et al., 2006; Wylleman, 2000; Zhao & Jowett, 2023). For many athletes, the quality of the coach-athlete relationship characterizes their entire athletic experience (Poczwardowski et al., 2002). Not only does this interpersonal dimension affect performance outcomes, but it also influences several psychological processes (McGee & DeFreese, 2019; Simons & Bird, 2023). Indeed, the coach-athlete relationship has been considered the core element of coaching effectiveness (Jowett, 2017).

To better operationalize the coach-athlete relationship, Jowett and Poczwardowski (Jowett & Poczwardowski, 2007) broadly defined it "as a situation in which a coach's and an athlete's cognitions, feelings, and behaviors are mutually and causally interrelated" (p. 4). Scholars have documented the prevalence of each of these factors individually (Jowett, 2007) and in combination (Isoard-Gautheur et al., 2016) for both processes and outcomes of the partnership. Situational conditions may also affect the relationship (Gano-Overway et al., 2023; D. Rhind et al., 2012; Thelwell et al., 2017) along with other contextual factors (e.g., gender, competition level, sport type; (Foulds et al., 2019; Murray et al., 2018)).

Although several models exist (Jackson et al., 2009; Mageau & Vallerand, 2003; Moen & Federici, 2014), the most widely accepted framework for describing coach-athlete relationships is derived from interdependence theory. Jowett and Meek's (2000) conceptualization has evolved into the "3+1Cs" model, and includes dimensions of closeness, commitment, complementarity, and co-orientation (Jowett & Poczwardowski, 2007). Closeness is characterized by the affective elements (e.g., liking and trust) in the relationship. Commitment pertains to the coach's and athlete's intentions to maintain the partnership. The cooperative and responsive behaviors between individuals exemplify complementarity. Lastly, co-orientation is determined by collectively considering the direct perspectives (i.e., what one dyad member thinks, feels, and acts toward the other) and the meta-perspectives (i.e., what a coach or athlete believes the other dyad member thinks, feels, and acts) of the dyad members.

To assess these dimensions, instruments have been developed to measure both direct (Jowett & Ntoumanis, 2004) and meta-perspectives (Jowett, 2009) of the relationship. Indeed, the use of the "3+1Cs" framework is widespread, with links to self-determination theory (Choi et al., 2013), transformational leadership (Lopez de Subijana et al., 2021), and relational efficacy (Jackson et al., 2010). The Coach-Athlete Relationship Questionnaire (CART-Q; (Jowett & Ntoumanis, 2004)) appears to have cross-cultural validity in many international populations (Pinho et al., 2024; Wang et al., 2023; Yang & Jowett, 2012). Such widespread use confirms the universality of the coach-athlete relationship (Jowett et al., 2017) and its significance in sporting contexts.

Athlete Satisfaction

While performance outcomes represent the societal "measuring stick" of success in sport, an athlete's satisfaction should also be taken into consideration. It has been suggested that the ultimate effectiveness of an athletic organization should be based not on performance, but on the satisfaction of the athletes (H. Riemer & Chelladurai, 1998). Because competition results can be influenced by uncontrollable factors (e.g., officiating, opponents, luck), performance measures may not be as meaningful as more subjective perspectives. Aligned with this contention, the National Collegiate Athletic Association (NCAA) conducts the "Growth, Opportunities, Aspirations and Learning of Students (a.k.a., GOALS) study" every five years (National Collegiate Athletic Association, n.d.). Such an emphasis suggests that athlete satisfaction is as important as the sporting outcome, despite the societal emphasis on winning.

(Chelladurai & Riemer, 1997) defined athlete satisfaction as "a positive affective state resulting from a complex evaluation of the structures, processes, and outcomes associated with the athletic experience" (p. 135). These authors contend that athlete satisfaction should be a primary goal of college athletic departments and should be assessed on multiple dimensions. More specifically, athlete satisfaction can be categorized into both processes (i.e., day-to-day experiences) and outcomes (i.e., performance measures). Furthermore, the processes (e.g., the coach's leadership style) can directly affect ratings of satisfaction and also conjunctively lead to outcomes (e.g., winning), which naturally influence perceptions of contentment.

To assess athlete satisfaction, (H. Riemer & Chelladurai, 1998) created the Athlete Satisfaction Questionnaire (ASQ) for use with intercollegiate athletes. Despite the utility of this instrument, research on athlete satisfaction remains somewhat limited. Even still, coach leadership has been linked with athlete satisfaction (Jawoosh et al., 2022) as well as team cohesion and organizational citizenship behavior in NCAA student-athletes (Aoyagi et al., 2008). Moreover, the relational component between coach and athlete appears to be a unique contributor to athlete satisfaction (Beattie & Turner, 2022). Because satisfaction has long been associated with sport attrition (Eliasson & Johansson, 2021; Schmidt & Stein, 1991) and is also considered a prerequisite to peak performance (Karreman et al., 2009), the need is clear for a better understanding of its antecedents in general, as well as those specifically related to the coach-athlete relationship.

The Present Study

Few researchers have examined the perceptions of NCAA student-athletes regarding the relationship between coaches and student-athletes. This contextual factor represents a gap in the literature and, more importantly, if left unexamined,

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is a topic that could have negative implications for overall student-athlete satisfaction and well-being. Without a deeper understanding of the coach-athlete relationship, potential strategies for enhancing the quality of student-athlete experiences may be overlooked, to the detriment of future NCAA sport participants. Therefore, the purpose of this study was to determine if student-athlete perceptions of the quality of the coach-athlete relationship have a predictive relationship with their ratings of athlete satisfaction.

Method

Participants

The target population was all NCAA student-athletes in the United States. A cluster sampling technique was used to ensure adequate representation across divisions. At the time of data collection, there were 99 NCAA conferences (32 Division I, 24 Division II, 43 Division III). To ensure a representative sample of each division, 25% of the conferences in each division were randomly selected for inclusion. Then, one institution from each of these conferences (8 Division I, 6 Division II, and 11 Division III) was randomly selected for inclusion in the study, totalling 25 NCAA institutions. Of the total number of student-athletes at each of these institutions, 25% were randomly selected to receive an email with an informed consent form and an anonymous survey link. A total of 552 student-athletes responded to the survey out of the 2,233 who received the questionnaire, resulting in a 24.7% response rate. After removing incomplete data sets, 387 responses were fit for analysis. All data analyses were conducted with IBM® SPSS® 20.0 statistical software suite.

Measures

Coach-Athlete Relationship

The most widely used tool for examining this interpersonal dyad is the Coach-Athlete Relationship Questionnaire (CART-Q; (Jowett & Ntoumanis, 2004)). The psychometric properties of this instrument have been established for assessing both coaches' and athletes' perceptions of the relationship. In the present study, the athlete's direct and meta-perspective versions were used. Overall, this brief 11-item survey measures the quality of the coach-athlete relationship on three different constructs of interdependence: closeness (e.g., "I like my coach"), commitment (e.g., "I am close to my coach"), and complementarity (e.g., "When my coach coaches me, I am ready to do my best"). The response scale (Likert) for these measures ranges from 1 ("strongly disagree") to 7 ("strongly agree").

Athlete Satisfaction

The Athlete Satisfaction Questionnaire (ASQ; (H. Riemer & Chelladurai, 1998)) was designed to assess intercollegiate athlete perceptions of satisfaction on multiple dimensions. The ASQ consists of 56 items that assess important components of an athlete's experience in sport, including performance, leadership, the team, the organization, and the individual. The survey includes 15 different subscales that could affect an athlete's ratings of satisfaction including: individual performance, team performance, ability utilization, strategy, personal treatment, training and instruction, team task contribution, team social contribution, ethics, team integration, personal dedication, budget, medical personnel, academic support services, and external agents. Responses are rated on a Likert scale from 1 ("strongly disagree") to 7 ("strongly agree").

Procedures

Once IRB approval was obtained, participant emails were acquired through each institution's directory service on their respective university websites. In the instance that an institution did not have a public search directory, another school was randomly selected from the same conference. After student-athlete emails were collected, an electronic informed consent form, which included the survey link, was emailed to the randomly selected participants. The link led to a questionnaire built in Qualtrics® survey software. Participant names were not linked with their responses. After the initial survey was sent, reminders were given to each participant ten days after the initial email and then again twenty days after the initial contact.

Statistical Analysis

Descriptive statistics were conducted to determine the quality of the coach-athlete relationship and ratings of satisfaction. For the correlational analyses, the independent variables were perceptions of the quality of the coach-athlete relationship in terms of closeness, commitment, and complementarity. In contrast, the dependent variable was ratings of athlete satisfaction. Additionally, the three constructs of the CART-Q (i.e., the "3Cs") could collectively indicate a predictive relationship with athlete satisfaction. To determine the aggregate influence of these factors on ratings of athlete satisfaction (i.e., using the "3Cs" as multiple predictors), a standard multiple regression was used. Several examples of these correlational approaches are present in the coach-athlete relationship literature (Baker et al., 2003; Burns et al., 2012; Nicholls et al., 2016) to legitimize this rationale.

Independent sample *t*-tests were also conducted to examine any differences in responses to either the CART-Q or ASQ across gender and sport type (i.e., individual and team). A one-way ANOVA was completed to determine differences between competition level (i.e., NCAA division). When significant differences were noted in the ANOVA, a Tukey HSD post-hoc test was conducted to determine which groups differed. The alpha level was set at $p < 0.05$ for all analyses.

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Results

Responses to the direct perspective CART-Q resulted in an overall mean score of 5.69 (*SD* = 1.19). Within the 11-item questionnaire are three subscales including four Closeness items (e.g., "I like my coach;" "My coach likes me"), three Commitment items (e.g., "I am committed to my coach;" "My coach is committed to me"), and four Complementarity items (e.g., "When my coach coaches me, I adopt a friendly stance;" "My coach adopts a friendly stance"). Summary descriptive results for both direct- and meta-perspective subscales are shown in Table 1.

Table 1: *CART-Q direct and meta perspective scores*

Scale	*M*	*SD*
Direct – Overall	5.69	1.19
Direct – Closeness	5.86	1.25
Direct – Commitment	5.40	1.37
Direct – Complementarity	5.75	1.17
Meta – Overall	5.53	1.20
Meta – Closeness	5.66	1.25
Meta – Commitment	5.34	1.30
Meta – Complementarity	5.54	1.25

Note. N = 387. Responses were on a 7-point Likert scale (where 1 indicates poor coach-athlete relationship quality and 7 indicates good coach-athlete relationship quality).

For responses to the ASQ, the overall satisfaction rating of this sample was 5.09 (*SD* = 0.91). Although the overall rating of satisfaction is the primary variable of interest, the ASQ contains 15 subscales that were also analyzed. Participants in this sample reported the highest satisfaction with their Personal Dedication (*M* = 5.84, *SD* = 0.93). The subscale with the lowest rating was satisfaction with the team Budget (*M* = 4.05, *SD* = 1.68). A complete list of the ASQ subscale scores is found in Table 2.

Gender Differences

Mean scores for male and female participants were compared across both direct and meta perspectives of the CART-Q, including overall scores and the subscales of Closeness, Commitment, and Complementarity. Overall ratings from the ASQ were also analyzed within this subgroup. Males had higher mean scores than females on every scale of the CART-Q as well as a higher overall rating of satisfaction. However, none of these differences reached the $p < 0.05$ level of statistical significance (See Table 3).

Sport Type Differences

Overall and subscale scores on the CART-Q, as well as overall scores on the ASQ, were analyzed to identify differences between participants in team sports and individual sports. There were statistically significant differences between team sport and individual sport student-athletes on all measures, with individual sport participants reporting higher ratings on the ASQ and CART-Q instruments. Effect size was calculated using the formula for Cohen's d (Cohen, 1988). All effect sizes ranged from small to moderate based on Cohen's criteria (small effect size: d = 0.20, medium effect size: d = 0.50, large effect size: d = 0.80). The mean scores on the Complementarity subscale of the CART-Q meta-perspective had the largest effect size (d = 0.41) between the two groups. Complete results are shown in Table 4.

Table 2: *ASQ subscale scores (sorted in descending order of Means)*

Subscale	*M*	*SD*
Personal Dedication	5.84	0.93
Team Social Contribution	5.51	1.22
Ethics	5.51	1.10
Medical Personnel	5.45	1.41
Team Task Contribution	5.34	1.13
Team Integration	5.27	1.26
Personal Treatment	5.18	1.42
Academic Support Services	5.12	1.31
Ability Utilization	4.99	1.42
Strategy	4.97	1.41
Individual Performance	4.92	1.38
Team Performance	4.62	1.58
External Agents	4.41	1.39
Training and Instruction	4.14	1.44
Budget	4.05	1.68

Note. Responses were on a 7-point Likert Scale (where 1 indicates "Not at all Satisfied" and 7 indicates "Extremely Satisfied").

Division Differences

To analyze the differences between participants of the three NCAA competition levels (i.e., Division I, Division II, Division III), a one-way ANOVA was conducted to compare responses on all measures of coach-athlete relationship quality, as well as athlete satisfaction. ANOVA values for the overall CART-Q direct and meta-perspectives are shown in Table 5, along with the overall values for measures of athlete satisfaction. The magnitude of observed differences was calculated using the formula for Eta squared (η^2). Cohen (1988) classifies .02 as a small effect, .06 as a medium effect, and .14 as a large effect for this measure of effect size. All differences found by the ANOVA test constitute a small to medium effect.

To further delineate the observed differences, post-hoc comparisons were conducted using a Tukey HSD test. Participants who compete at the NCAA Division III level reported higher scores than those in Division I and Division II on all variables. No statistically significant differences were seen between Division I and Division II participants. The multi-

Table 3: *Results of t-tests and Descriptive Statistics: CART-Q and ASQ by Gender*

	Male			Female				
Measure	*M*	*SD*	*n*	*M*	*SD*	*n*	*t*	*df*
CART-Q								
Direct – Overall	5.75	1.19	156	5.66	1.20	231	0.795	385
Direct – Closeness	5.95	1.20	156	5.81	1.28	231	1.134	385
Direct – Commitment	5.45	1.32	156	5.36	1.40	231	0.659	385
Direct – Complementarity	5.78	1.25	156	5.73	1.12	231	0.443	385
Meta – Overall	5.60	1.17	156	5.48	1.22	231	0.926	385
Meta – Closeness	5.72	1.23	156	5.62	1.27	231	0.835	385
Meta – Commitment	5.42	1.24	156	5.29	1.34	231	0.931	385
Meta – Complementarity	5.61	1.22	156	5.50	1.27	231	0.886	385
ASQ								
Overall Satisfaction	5.12	0.90	156	5.07	0.92	231	0.561	385

Note. Equal variances were assumed.

Table 4: *Results of t-tests and Descriptive Statistics: CART-Q and ASQ by Sport Type*

	Team Sport			Individual Sport					
Measure	*M*	*SD*	*n*	*M*	*SD*	*n*	*t*	*df*	*d*
CART-Q									
Direct – Overall	5.52	1.27	217	5.92	1.05	170	-3.33***	385	0.34
Direct – Closeness	5.68	1.36	217	6.09	1.05	170	-3.24***	385	0.34
Direct – Commitment	5.22	1.44	217	5.63	1.25	170	-2.93**	385	0.30
Direct – Complementarity	5.58	1.24	217	5.97	1.08	170	-3.30***	385	0.34
Meta – Overall	5.35	1.27	217	5.75	1.07	170	-3.28***	385	0.34
Meta – Closeness	5.50	1.33	217	5.86	1.11	170	-2.81**	385	0.29
Meta – Commitment	5.20	1.35	217	5.52	1.21	170	-2.43*	385	0.25
Meta - Complementarity	5.32	1.32	217	5.82	1.10	170	-3.97***	385	0.41
ASQ									
Overall Satisfaction	4.96	0.98	217	5.26	0.77	170	-3.29***	385	0.34

Note. Equal variances were assumed. *p < .05, **p < .01, ***p < .001

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ple comparison results are presented in Table 6. A depiction of the results for overall scores on the CART-Q and ASQ is shown in Figure 1.

Correlational Analyses

A Pearson product-moment correlation coefficient was used to determine any associations between all scales of the CART-Q direct and meta perspectives and the overall score from the ASQ. There was a strong positive correlation between all measures of coach-athlete relationship quality and overall athlete satisfaction at the p < 0.01 level, with higher ratings of the coach-athlete relationship associated with higher ratings of athlete satisfaction. Table 7 has complete results.

Regression Analyses

To explore relationships between the independent and dependent variables, a standard multiple regression was used to

Figure 1: Differences between NCAA Divisions on overall CART-Q and ASQ scales.

(A) *Note.* D1 = NCAA Division I; D2 = NCAA Division II; D3 = NCAA Division III. **Division III statistically different from Divisions I & II, p < .05.

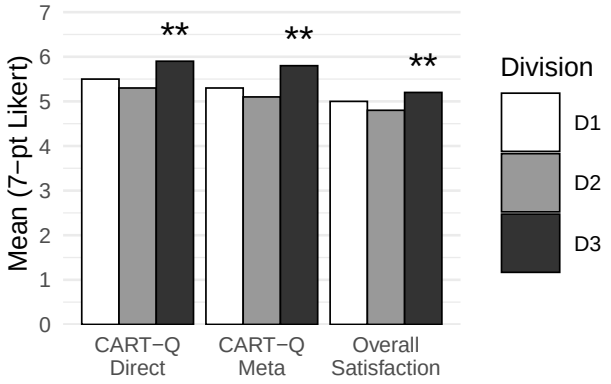

Table 5: *Results of ANOVA test statistics: CART-Q and ASQ by Division*

Scale		Sum of Squares	df	Mean Square	F	η^2
CART-Q						
Direct - Overall	Between Groups	18.16	2	9.08	6.55*	0.03
	Within Groups	532.53	384	1.39		
	Total	550.67	386			
Meta – Overall	Between Groups	17.33	2	8.67	6.16*	0.03
	Within Groups	540.70	384	1.41		
	Total	558.03	386			
ASQ						
Overall Satisfaction	Between Groups	9.43	2	4.72	5.87*	0.03
	Within Groups	308.75	384	0.80		
	Total	318.18	386			

Note. *$p < 0.01$

Table 6: *Descriptive Results of ANOVA Post-Hoc Comparisons: CART-Q and ASQ across Divisions*

	Division 1		Division 2		Division 3	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*
CART-Q						
Direct – Overall	5.56	1.28	5.34	1.37	5.89**	1.03
Direct – Closeness	5.70	1.33	5.54	1.49	6.07**	1.07
Direct – Commitment	5.29	1.47	5.02	1.48	5.59*	1.24
Direct – Complementarity	5.63	1.28	5.39	1.31	5.94**	1.01
Meta – Overall	5.34	1.32	5.20	1.26	5.73**	1.07
Meta – Closeness	5.56	1.38	5.34	1.35	5.83*	1.11
Meta – Commitment	5.22	1.38	4.98	1.37	5.54*	1.18
Meta - Complementarity	5.35	1.39	5.22	1.26	5.77**	1.12
ASQ						
Overall Satisfaction	4.99	0.84	4.85	0.96	5.24**	0.91

Note. †Statistically different from D2 only, ††Statistically different from D1 and D2, *$p < .05$

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determine how measures of coach-athlete relationship quality predict ratings of athlete satisfaction (i.e., using the "3Cs" as multiple predictors). This approach was used to determine the unique variance in the dependent variable (i.e., athlete satisfaction) that each of the three independent variables explains. Two separate regressions were used; one for the CART-Q direct-perspective and one for the CART-Q meta-perspective.

The results of the first multiple regression analysis indicated that the three CART-Q direct-perspective predictors explained 51.3% of the variance in athlete satisfaction (R^2 = 0.513, $F(3, 383) = 136.70$, $p < .001$). Furthermore, ratings of Commitment significantly predicted athlete satisfaction (β = 0.43, $p < .001$), as did Complementarity ($\beta = 0.17$, $p < .05$). Both Commitment and Complementarity subscales made a statistically significant unique contribution to the variance explained by the model. See Table 8 for summary results.

Results of the second multiple regression analysis with the three CART-Q Meta perspective predictors explained 48.1% of the variance (R^2 = .481, $F(3, 383) = 120.21$, $p < .001$). Unlike the direct perspective, ratings on the subscale of Meta-Commitment did not predict athlete satisfaction ($\beta = 0.15$, p = .06), but both Meta-Closeness ($\beta = .23$, $p < .05$) and Meta-Complementarity ($\beta = .35$, $p < .001$) made statistically significant unique contributions to the variance in athlete satisfaction. Summary results are in Table 9.

Discussion

All measures of coach-athlete relationship quality had strong positive correlations with overall athlete satisfaction, with higher ratings of interdependence associated with higher ratings of athlete satisfaction. These results are substantiated in other populations (Jowett & Nezlek, 2012) and demonstrate a positive relationship between constructs from both direct and meta-perspectives. The strongest correlation was observed between athletes' overall self-perceptions of the coach-athlete relationship and satisfaction. In short, the coach-athlete relationship is linked with NCAA student-

Table 7: *Pearson Product-moment Correlations Between the CART-Q and ASQ*

Scale	1	2	3	4	5	6	7	8	9
CART-Q									
1. Direct – Overall	1	.971	.945	.942	.953	.801	.784	.843	.713
2. Direct – Closeness		1	.898	.869	.827	.778	.754	.819	.686
3. Direct – Commitment			1	.816	.861	.812	.826	.818	.704
4. Direct – Complementarity				1	.758	.706	.670	.774	.652
5. Meta – Overall					1	.964	.938	.947	.695
6. Meta – Closeness						1	.879	.863	.665
7. Meta – Commitment							1	.821	.640
8. Meta - Complementarity								1	.673
ASQ									
9. Overall Satisfaction									1

Note. All correlations are statistically significant at the $p < .01$ level.

Table 8: *Multiple Regression Results: CART-Q direct perspective subscales and ASQ*

Predictor	B	SE B	β
Direct – Closeness	0.12	0.07	0.16
Direct – Commitment	0.28	0.05	0.43**
Direct - Complementarity	0.13	0.06	0.17*

Note. $R^2 = .513$ (*$p < .05$, **$p < .001$)

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athlete satisfaction and this finding underlines the importance of considering the athletes' perspective in sport research (National Collegiate Athletic Association, n.d.; Poczwardowski et al., 2006; Wylleman, 2000).

Interestingly, males and females did not differ significantly in their ratings of coach-athlete relationship quality. Such a result contradicts other investigations that found females reported higher levels of interdependence than males (Jowett & Nezlek, 2012). Additionally, it has been noted that women tend to perceive greater similarity between their perceptions of commitment and those of their coaches than men (Jowett & Clark-Carter, 2006). There is evidence of gender influences in the coach-athlete relationship (Haan & Norman, 2020; Lopez de Subijana et al., 2021; Lorimer & Jowett, 2010; McShan & Moore, 2023), although the current results do not support this contention. More research is warranted to elucidate further gender dynamics in this relationship (Zhao & Jowett, 2023).

A less surprising finding was the difference in perceptions of coach-athlete relationship quality between team sport athletes and individual sport athletes. Participants who competed in individual sports, such as tennis and cross-country, reported feeling closer to and more committed to their coaches than athletes in team sports (e.g., basketball and football), which confirms previous findings reported in the literature (Lorimer & Jowett, 2009a; D. Rhind et al., 2012). The current study also noted differences in ratings of complementarity between sport types, with athletes in individual sports reporting more favorable perceptions than athletes in team sports. These results contradict the findings of (D. Rhind et al., 2012), who reported no differences across sport types on this dimension of the relationship. These inconsistencies may be due to the highly individualistic nature of the coach-athlete relationship across contexts. Moreover, Simons and Bird (2023) found no differences across sport types, which suggests that further investigation is warranted to understand these discrepancies across studies.

Participants from Division III institutions differed from their Division II counterparts on all measures of coach-athlete relationship quality and all but two measures from Division I respondents. These results suggest that there may be inherent differences in the Division III student-athlete experience. It is acknowledged that Division III sport competitors do not receive athletic scholarships and spend less time on athletics than their higher-level counterparts (National Collegiate Athletic Association, n.d.). However, this distinction might lead one to wrongly imply that their relationships with their coaches would be underdeveloped. The recruiting regulations at NCAA Division III institutions are less stringent than those in other divisions, which opens the way for a stronger coach-athlete relationship from the start, as coaches can communicate with prospective athletes more freely. Indeed, communication is a key component to healthy coach-athlete relationships (Davis et al., 2019).

Additionally, both coaches and student-athletes recognize that participation in Division III sports is more about personal

Table 9: *Multiple Regression Results: CART-Q meta perspective subscales and ASQ*

Predictor	B	SE B	β
Meta – Closeness	0.17	0.07	0.23*
Meta – Commitment	0.11	0.06	0.15
Meta – Complementarity	0.26	0.06	0.35**

Note. R^2 = .481 (*p < .05, **p < .001)

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enrichment than a springboard to professional athletics (National Collegiate Athletic Association, 2021). This focus on self-fulfilment and personal success may be the reason for stronger coach-athlete relationships at this level. However, it is essential to acknowledge that Division III competitors strive for performance excellence in competition, just as athletes at other levels do.

The present study also confirms the findings of (Lorimer & Jowett, 2009b), who found that athletes' meta-perspectives of the coach-athlete relationship were significantly and positively associated with ratings of satisfaction. Believing their coaches are trustworthy, committed, and friendly is a significant contributor to athletes' satisfaction. However, this finding also has implications for coaches. Coaches may have different perceptions of the relationship than athletes (Haugan et al., 2021), but the most important component is that the athletes' perception aligns with their preferences (Chelladurai, 1984; Rocchi & Pelletier, 2018). More specifically, the athletes' perceptions of coach empathy may be a mechanism that connects coach-athlete relationship quality with satisfaction (Jowett et al., 2012). Coaches can promote athlete satisfaction by developing and practicing empathy with their athletes. (Lorimer, 2013) provides recommendations for how coaches can enhance their empathic accuracy, including strategies such as avoiding biases and being reflexive. This area is ripe for future investigation.

As indicated in the multiple regression analysis, the single greatest contributor to athlete satisfaction was Commitment to their coach, followed by Complementarity as the other significant predictor. Since the Commitment subscale refers to the cognitive elements of the coach-athlete relationship, the way athletes think about the relationship is of paramount importance. Suppose they believe they are close to, committed to, and have a promising career with their coach. In that case, they are likely to report high satisfaction ratings. Such a finding highlights the significance of athletes' thought processes, as well as the necessity for coaches to comprehend and even target athletes' cognitive patterns. By seeking to encourage athlete commitment to the relationship, coaches may positively affect athlete satisfaction. However, there may also be negative implications in highly committed relationships (Nicholls et al., 2016) that should be considered in conjunction with the positive consequences.

Interestingly, with the Meta perspective subscales as predictors, Commitment does not make a significant contribution to athlete satisfaction. This suggests that athlete contentment is not affected by whether participants believe their coaches are committed to them. As such, satisfaction is influenced more by athletes' commitment to the relationship than by their perception of their coaches' commitment to the relationship. In other words, the direct-perspective of commitment is a better predictor of athlete satisfaction than the meta-perspective. The direct-perspective has also been shown longitudinally to predict the attainment of mastery achievement goals (Nicholls et al., 2017). This may be because athletes can more accurately assess their understanding of the relationship (i.e., direct-perspective) than they can assess how their coach might perceive it (i.e., meta-perspective). Even still, the meta-perspective has been linked with achievement goal orientation and intrinsic motivation in athletes (Adie & Jowett, 2010), which demonstrates the importance of assessing satisfaction from multiple perspectives.

Lastly, the component of the meta-perspective that was the single greatest contributor to ratings of athlete satisfaction was Complementarity (Closeness was also a significant predictor but to a lesser extent). Sport participants may experience higher levels of satisfaction when their coaches are at ease, respond to athletes' efforts, are ready to do their best, and adopt a friendly stance. Perceptions of coaching behavior are a crucial aspect of athlete satisfaction (Felton et al., 2021), and coaches would be wise to adopt behaviors that are perceived positively by their athletes (Kassim & Boardley, 2018).

Implications and Future Directions

The most noteworthy implication of this study is the clear association between the quality of the coach-athlete relationship and athlete satisfaction. Although this finding does not establish a cause-and-effect relationship, the quality of the coach-athlete relationship is an antecedent to athlete satisfaction. Sports coaches play a central role in the experience of student-athletes, and the relationship between these individuals is a key determinant of athlete satisfaction. Importantly, a universal approach (i.e., one-size-fits-all) to the relationship may not be effective. Indeed, there is a need for different leadership approaches within the same team (H. A. Riemer &

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Chelladurai, 1995). By tailoring their coaching style to fit the unique needs of each athlete, coaches can enhance the relationship and positively impact athletes' ratings of satisfaction, which may lead to athletes staying in the sport for longer (Barnett et al., 1992; Wekesser et al., 2021). With student-athlete well-being as a central tenet of its mission, the NCAA could encourage coaches to engage in continuing education aimed at enhancing the coach-athlete relationship. These types of trainings can be effective (Smoll & Smith, 2006); future research should examine relationship maintenance strategies to identify the skills used by effective coaches. Some frameworks for enhancing the coach-athlete relationship already exist (Davis et al., 2019; D. J. Rhind & Jowett, 2010), but further research is needed to link these strategies with key sport outcomes (e.g., performance, satisfaction, etc.).

Limitations

Although the results of this study are intriguing, they are not without limitations. First, the sample consisted only of NCAA student-athletes, and the results are not generalizable to the broader population. Additional research is needed with participants from other levels of sport (i.e., youth, high school, and professional) to gain a better understanding of the contexts. Second, the data collection procedures relied on self-report measures. Although the CART-Q and ASQ are widely accepted as valid and reliable instruments, their results should be compared to more objective measures. Another important limitation is that coaches' perceptions of the coach-athlete relationship were not collected in this study. Future investigations should incorporate these perspectives to gain a more comprehensive understanding of the variables of interest.

Additionally, data collection took place early in the participants' spring semester. More longitudinal studies are needed to substantiate the major claims of the present study. Lastly, the primary statistical analyses were correlational, and results should be interpreted with caution. Although the findings of this study are intriguing, they do not imply a cause-and-effect relationship.

Conclusion

The results of this study represent a framework for future investigations that could inform the NCAA and coach education outlets. More importantly, though, are the implications for sport coaches who occupy a central role in student-athlete experiences. These practitioners are well-positioned to foster a positive coach-athlete relationship, which could ultimately lead to better outcomes for athletes. Therefore, it may be wise for sports coaches to engage in professional development aimed at fostering healthy relationship skills.

License

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