

Perceived Coach Social Support and Coach-Athlete Relationship: A Moderated Mediation Model of Coach-Athlete Attachment and Proactive Personality

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Abstract: Objective: The purpose of this study was to investigate how perceived social support from coaches leads to favorable coach-athlete relationships via the mediation of coach-athlete attachment and the moderation of proactive personality. Method: The study consisted of a cross-sectional self-report survey with a sample of 302 professional athletes recruited and measured by psychological questionnaires of perceived coach social support, coach-athlete attachment, coach-athlete relationship, and proactive personality. The structural equation model examined the moderated mediation model. Results: The results indicated that coach-athlete attachment partially mediated the prediction of perceived coach-social support in the coach-athlete relationship. Proactive personality played a moderated role between perceived coach social support and coach-athlete attachment. Conclusions: This study suggests that coaches should pay more attention to athletes to build up the coach-athlete relationship, while they also need the athletes' positive feedback.

Keywords: Perceived coach social support; Coach-athlete relationship; Proactive personality; Coach-athlete attachment; Moderated mediation model

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1. Introduction

The coach-athlete relationship is one of the most important interpersonal relationships in the athletes' career development, which also plays a critical role in athletes' training and competition. Coach-athlete relationship exerts direct impacts on the athletes' motivation, satisfaction with sport, and performance accomplishments [1-5]. A recent study also showed that the coach-athlete relationship influences athletes' cognitive performance and psychological fatigue, within which the authors suggest that the athletes with higher quality coach-athlete

relationships perform better on Stroop tasks and reported a lower level of mental fatigue ^[6].

Researchers have explained the relationship between coaches and athletes from different points of view. The motivation models believe that motivation is an important influence factor in the coach-athlete relationship ^[7]. Coaches promote the establishment of a harmonious relationship by inducing the internal and self-determination motivation of athletes. The multidimensional model of coach leadership considers that the leadership of coaches is an important factor in the coach-athlete relationship. The Reversal theory suggests that the coach-athlete relationship is based on an integrative framework, which can be examined from a phenomenological perspective ^[8]. The most widely distributed is the 3+1Cs theory model, which highlights the dynamic development of interpersonal relationships that comprise the elements of closeness, commitment, and complementary ^[9].

1.1. Perceived coach social support and coach-athlete relationship

According to previous studies, researchers tend to attribute the responsibilities of maintaining a high-quality coach-athlete relationship unilaterally to coaches (such as the role of coaches' passion) while ignoring the proactivity of athletes themselves ^[10]. This study holds the standpoint that the high-quality coach-athlete relationship is built and maintained through the mutual efforts of both coaches and athletes.

In terms of coaches, they provide social support by offering problem-solving strategies for athletes. Social support serves as an emotional coping mechanism with the potential to affect the quality of life and relieve stress and depression ^[11]. Previous research found that social support of significant others imparts to raise their quality of life ^[12]. Athletes could receive social support from people in and out of sports contexts, such as family members, friends, teammates, coaches, physiotherapists, and psychologists. However, coaches are the significant others for athletes during their training and competitions as they offer tangible, informational, emotional, and esteem support to athletes ^[13-14]. Coaches are not only responsible for training and coaching athletes to win competitions but also need to be able to understand how their players feel in a training atmosphere during and after the competition ^[15]. Maybe sometimes they also need to take care of something beyond the competition, such as career planning after retirement. In addition, athletes are more satisfied with the task challenge support provided by coaches than by teammates, who they report a significant contribution to their well-being ^[16]. Hence, this study supposes the support provided by coaches may be an important factor in the coach-athlete relationship.

In addition to the concept of social support, there is an issue of whether social support is perceived as beneficial. The concept of perceived social support deals with support in terms of individual cognitive evaluation of surroundings and relation with others. As the previous research indicates, perceived social support is a predictor of mental health ^[17]. In this study, the main purpose is to test the link between perceived coach social support and coach-athlete relationships.

1.2. The mediating role of coach-athlete attachment

Attachment influences a wide array of psychosocial phenomena, including interpersonal relationships ^[18]. Attachment theory was constructed by researchers to explore the link between attachment style and romantic-relationship quality. Researchers believe that individuals with a secure attachment style would feel comfortable when they are close to others, as they are more dependent on others and prefer others to rely on themselves too ^[19]. In recent years, attachment theory has been gradually applied to the sports domain ^[20]. Carr found that insecure

attachment bonds between adolescents and their parents can bring more negative friendship features with their sports teammates ^[21]. On the contrary, in a recent study, secure attachment with a coach was considered to significantly lead to a greater likelihood of sport-related concussion reporting, which means that the secure coach attachment brings more help-seeking behaviors ^[22]. The adolescent attachment type not only affects athletes on their own but also transmits to and is received by the relationship partners with whom they elect to form close friendships ^[23]. In another study, Jowett pointed out that coaches were very helpful to their athletes because they can provide help during difficult times, including periods of burnout and injury, as well as periods of emotional crisis, such as disqualification from a major competition ^[24]. In addition, Mageau and Vallerand described coaches as the ones who teach athletes technical skills and also the ones who nurture the whole person ^[7]. That is to say, athletes think that they can find a comfortable safe space that is filled with closeness and proximity. Therefore, the more support the coaches provide, the easier it is to establish high-quality coach-athlete attachment. Hence, this study supposes that the coach-athlete attachment is a mediate variable between perceived coach social support and coach-athlete relationship.

However, these previous studies have some limitations. For example, Hazan, et al. hold the view that only the division of attachment style was used in those studies, so the subjects might not be able to express their feelings about the relationship accurately ^[19]. They recommended using continuous multi-item scales to measure attachment more reliably ^[25]. Thus, this study measures attachment quality using a coach-athlete attachment questionnaire, a revised scale based on the Inventory of Parent and Peer Attachment Questionnaire (IPPA) ^[26].

1.3. The moderating role of proactive personality

Other than the availability of environmentally supportive structures, the perception of social support is also likely influenced by personality factors. Proactive personality is the concept that was put forward by positive psychology in recent years and has a positive impact on stable proactive behaviors of individual characteristics. People will take the initiative to change the external environment.

Proactive personality was first proposed in the field of organizational behavior by Bateman and Crant ^[27]. Researchers explain the impact of proactive personality on work performance from the perspective of social capital ^[28]. Bateman et al. propose that proactive personality is a relatively stable tendency so individuals with proactive personality are good at grasping opportunities to take action quickly and persist with it until meaningful changes occur ^[27]. They held the view that individuals with proactive personalities are pioneers who transform missions into problem-solving. Highly proactive engineers continue to test new materials and show their persistence until the problems are resolved, while those with low proactive personalities display less initiative in their career development, do not seek opportunities actively, and tend to regard work stress as trouble ^[29].

In the field of sport, the proactive personality of athletes is manifested in two contexts ^[30]. One is in the competition. At the beginning of matches, the proactive ones of the two parties on an equal level can grasp the initiative advantage beyond their opponents who have not yet fully concentrated. Another context is in training, where proactive athletes are more willing to communicate with coaches. Coaches will also give positive feedback if they perceive athletes behave actively. In this way, either coaches or athletes can get support from each other, and the coach-athlete attachment will certainly be improved. Hence, this study expects that coach-athlete attachment would be higher and the quality of coach-athlete relationships would be stronger when athletes' proactive personality is high.

The moderated effect may exist in three paths, the first one is from perceived coach social support to coach-athlete relationship, the second one is from perceived coach social support to coach-athlete relationship, and the third one is from coach-athlete attachment to coach-athlete relationship. However, based on previous research, the correlation between coach-athlete attachment and coach-athlete relationship is very strong^[20–21]. Besides, inconsistent results in research about coach-athlete attachment and coach-athlete relationship could not be found. As a result, this study only tests the moderated effect of proactive personality in the first two paths while ignoring the last one.

2. Methods

2.1. Participants

The investigation was done online and in writing. Three hundred and eleven professional athletes were recruited. Among 311 questionnaires, 302 were usable for the analyses. Among the participants, 35 of them were international-caliber or national master class, 61 of them were national level-1, 101 of them were national level-2, 44 of them were national level-3, and the remaining 61 athletes' sport level were missing; 46% were female, the average age was 16.99 (9–38, SD = 4.59) years old, and the average training time was 2.16 (1–18, SD = 2.37) years. Sports events include shooting, archery, judo, boxing, basketball, football, volleyball, throwing, walking, and weightlifting.

2.2. Measures

2.2.1. Perceived coach social support

The athletes' perceptions received from coaches were measured by the Athlete's Perception of the Coach Social Support Questionnaire (APCSSQ), which is a nine-item scale (e.g., "Coaches care about our life, diet, and health") with a five-point Likert scale, 1 (never) to 5 (always)^[31]. The Cronbach's alpha was .890.

2.2.2. Coach-athlete attachment

The study measured the coach-athlete attachment by using twenty-five items from the Inventory of Parent and Peer Attachment^[26]. The scale anchor ranges from 1 (never) to 5 (always), with sample items such as "I think my coach is a good coach." There are three subscales including trust (10 items), communication (9 items), and alienation (6 items). The coefficient alpha for this scale was .897. The overall Cronbach's alpha for this scale was .897, and the Cronbach's alpha for each subscale was between .757–.767.

2.2.3. Coach-athlete relationship

The Chinese version of the Coach-Athlete Relationship Questionnaire (CAR-Q) was developed based on the CAR-Q developed by Jowett and Ntoumanis and was used to measure athletes' perceptions of their relationships with their coaches^[4]. CAR-Q comprised 11 items (e.g., "I trust my coach") across three subscales: closeness (four items), commitment (three items), and complementarity (four items). Items are rated on a 5-point Likert scale, 1 (not at all) to 5 (very much). The overall Cronbach's alpha for this scale was .912, and the Cronbach's alpha for each subscale was between .746–.855.

2.2.4. Proactive personality

Proactive personality was measured with 10 10-item abridged version of Proactive Personality Scale (PPS)

adapted by Claes ^[32]. The scale in this research is a Chinese version scale, a 5-point Likert scale anchor ranging from 1 (not at all) to 5 (very much), which was tested by Shan ^[33]. A sample item is “If I see something I do not like, I fix it.” The Cronbach’s alpha was .71.

3. Results

3.1. Common method biases test

Before testing the hypotheses, the study used the potential error variable control method to examine the common method biases. The study added the common method deviation as a potential variable to the structural equation model and compared the model fitting degrees before and after joining the common method deviation factor. If the fitting degrees of the model with common method deviation were superior to those of the model without the common method deviation, the common method biases existed. In the current study, the differences between the models with and without the common method deviation were not significant ($\Delta\chi^2 = 85.024$, $\Delta df = 12$, $\Delta\chi^2/df = 7.085$), which indicated that serious common method biases do not exist statistically.

3.2. Descriptive statistics

Table 1 presents the means, standard deviations of all of the variables, and the correlations between each other. The correlation coefficients show the expected direction of association and, with the one between alienation and proactive personality excepted, are all significant at the $P < 0.01$ level. These results preliminarily support the hypothesis of the relationship between variables of the study and find the prerequisites of model construction and moderated mediation effect test are satisfied.

Table 1. Descriptive statistics, correlations, and scale reliabilities for scale variables

	Scales	M	SD	1	2	3	4	5	6	7
1	Perceived coach social support	3.88	0.80	-						
2	Trust	3.51	0.69	.643**	-					
3	Communication	3.37	0.75	.583**	.777**	-				
4	Alienation	3.63	0.75	.469**	.534**	.475**	-			
5	Closeness	4.49	0.72	.618**	.471**	.357**	.417**	-		
6	Commitment	3.99	0.84	.660**	.656**	.581**	.465**	.779**	-	
7	Complementarity	4.17	0.71	.596**	.508**	.475**	.407**	.689**	.760**	-
8	Proactive personality	3.53	0.49	.211**	.263**	.306**	.059	.175**	.310**	.327**

Note: N = 302, ** $P < 0.01$.

3.3. Structural equation model

Following the recommendations in previous research, the study used the Z score to standardize the data, to make the coefficient of regression equation more explanatory ^[34].

According to the item parceling strategies in structural equation modeling, the “item-to-construct balance” method was used to parcel the items of perceived coach social support and proactive personality before building the model. Three indicators were formed as the observation variables of perceived coach social support and

three indicators were formed as the observation variables of proactive personality. As the CFAs test results, the two models were well fitted.

In the first step, the study used Amos 23.0 to test the moderated effect of proactive personality in the first path before entering the mediation effect. Results showed that the model fitted well: $\chi^2(50) = 2.144$, RMSEA = 0.062, SRMR = 0.0434, GFI = 0.947, CFI = 0.965, IFI = 0.966, TLI = 0.954. However, the path from the interaction of perceived coach-social support and proactive personality to the coach-athlete relationship was not significant ($\beta = .056$, $P = .360 > .05$). These indicate that the moderated effect of proactive personality does not exist between perceived coach-social support and coach-athlete relationship.

In the next step, the study tested the moderated effect of proactive personality in the second path, and it also showed an acceptable fit to the date: $\chi^2(84) = 2.832$, RMSEA = 0.078, SRMR = 0.0618, GFI = 0.907, CFI = 0.935, IFI = 0.935, TLI = 0.918. **Figure 1** presents the results of the structural equation model. As the figure shows, all path coefficients are significant, which indicates that the model is significant. The model was tested by Bootstrap with the sampling repeated 5,000 times with a 95% confidence interval [35]. Results showed the total effect was 0.679 (95% CI: [0.550–0.816]), the direct effect was 0.454 (95% CI: [0.267–0.649]) and the indirect effect was 0.225 (95% CI: [0.132–0.334]). The effect size of the mediation effect (P_M , the ratio of the indirect effect to the total effect) was 33.14%, which illustrated that coach-athlete attachment was the mediated variable between perceived coach social support and coach-athlete relationship [36–37]. The path coefficient of the product of perceived coach social support and proactive personality to coach-athlete attachment was significant ($\beta = 0.21$, $P = .002$; 95% CI: [0.061–0.444]), indicating that the moderation effect was significant.

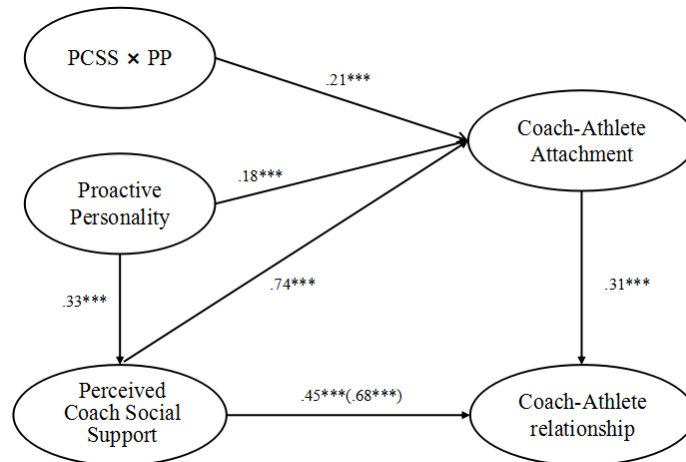


Figure 1. Results of the structural equation modeling

Note: $N = 302$. Except for the two path coefficients (the path coefficient between proactive personality and coach-athlete attachment and the path coefficient of the product of perceived coach social support and proactive personality to coach-athlete attachment) are significant at the $P < .005$ level, all other factor loadings and path coefficients are significant at the $P < .001$ level. PCSS means Perceived Coach Social Support; PP means Proactive Personality.

4. Discussion

Coach-athlete relationship, as the core relationship in a competitive sports environment, has an important impact on skill training and athletic performance and athletes' whole sports career as well [38]. This study emphasizes establishing a high-quality coach-athlete relationship by cooperating with the efforts of both

coaches and athletes. According to the results of a moderated mediation model, athletes' perceived coach social support can positively predict coach-athlete relationships and the prediction process is partially through the high quality of coach-athlete attachment. Meanwhile, the quality of coach-athlete attachment also depends on the athletes' proactive personality.

Rhind and Jowett describe a COMPASS model in the investigation of coach-athlete relationship maintenance strategies^[39]. In the theoretical framework, one of the most important dimensions is "Support", which is defined as showing that one is committed to the coach-athlete relationship and available for the coach/athlete in terms of both sport-related and personal issues. They distinguish three themes of support, including "assurance", "sport-specific support", and "personal support". From the athletes' own words, the support provided by their coaches, during the competition or through a difficult time, helps them to maintain the quality of the relationship between their coaches. In another study, researchers describe two types of coaches' social support, informational and tangible social support. Athletes with high informational or tangible support are less susceptible to burnout in low or high life stress conditions^[40]. As a result, social support from coaches provides trust and emotional tightness to athletes, which improves the coach-athlete attachment and then maintains the harmonious coach-athlete relationship.

Davis et al. introduced the attachment theory into the sports field^[20, 25]. They highlight that attachment styles can help understand the processes involved in the formation and maintenance of quality relational bonds between coaches and athletes^[25]. Attachment style can predict relationship satisfaction. This study used the concept of quality of attachment instead of attachment style, so athletes expressed the attachment between their coaches more accurately. This study finds that perceived social support is an important predictor of coach-athlete relationship, which means that the more social support an athlete perceives from coaches, the higher the quality of coach-athlete attachment is. Thus, the coach-athlete relationship is maintained. Social support provided by a coach can provide strategies to solve problems for athletes especially when athletes are in difficult times. Coaches provide social support by applying and expanding athletes' knowledge (i.e., professional, interpersonal, intrapersonal) during the injury rehabilitation process^[41]. Thus, athletes can lose negative emotions and recover from injury more quickly.

This study also finds the important role of athletes' proactive personalities when testing how to maintain the quality of coach-athlete relationships. In the research, the moderation effect of proactive personality only exists between perceived coach social support and coach-athlete attachment. In other words, a proactive personality does not directly moderate the link between perceived coach social support and coach-athlete relationship, which is consistent with the hypothesis of attachment theory. The attachment system is unstable and it needs to repeat dyadic interactions with primary caregivers. Whether social support provided by coaches can increase coach-athlete attachment or not depends on the proactive personality of the athletes. Athletes with high proactive personalities respond more actively to social support from coaches and are more likely to have attachment behaviors to coaches. It is consistent with the previous study that athletes' personality characteristic (e.g. gratitude) helps build a harmonious coach-athlete relationship^[42]. Proactive personality refers to an individual's tendency to initiate environmental changes^[27]. When athletes are not actively involved in sports, such as under pressure or due to some other special reasons, a highly proactive personality may turn such pressure into motivation, they believe it is a test by their coach and take the initiative to participate in sports. Athletes with low proactive personalities may show a nonchalant or even resistant attitude^[43]. All in all, it is essential for athletes to respond to the social support provided by the coaches positively and to make a change

in behavior.

The current research contributes to the empirical evidence for maintaining a high-quality coach-athlete relationship, while the limitations are provided as follows. Firstly, the study mixed the data of athletes from both individual events and team events. However, the mental distance may differ between athletes from different sports events. In individual events, such as tennis, badminton, boxing, and so on, each of the athletes has his/her coach, so that coaches may concentrate on their single athlete, which leads to closer relationships as they communicate with each other more frequently. However, in team events, like basketball, volleyball, hockey, ice hockey, and so on, a coach is responsible for all the teammates. Coaches find it easier to give more concentration to the core team members and more distance from others. As a result, social support provided by coaches in these two conditions may differ. In future research, these two kinds of athletes should be explored separately.

Moreover, all the data came from athletes' self-report. This study does not have information about how coaches think about their relationship with athletes. The viewpoints of these two groups of people may be different. Athletes' views may be one-sided as they put their attention narrowly on the competition while ignoring other things surrounding it. Coaches will consider regulations, team management, competition matters, media reports, and many other issues, so their views are also needed. This study suggests that future analyses should be based on comprehensive evaluation by both athletes and coaches, especially for the coach-athlete relationship.

5. Conclusions

This study tested how to build a high-quality coach-athlete relationship, which needs positive effort from both athletes and coaches. On one hand, the social support provided by the coaches can promote the establishment of the relationship between coaches and athletes, and the construction of this relationship is realized by the mediator variable of the coach-athlete attachment. On the other hand, the proactive personality is the moderator variable. Athletes with high proactive personalities will respond to the social support of coaches more actively and are more likely to have attachment behaviors to coaches than their counterparts with low proactive personalities. This means that while coaches should pay more positive attention to athletes, they also need athletes' positive feedback.

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Reference

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