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Role of athletic coach mentors in promoting youth academic success: Evidence from the Add Health national longitudinal study

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ABSTRACT

Organized sports are among the most common youth activities in the United States, and athletic coaches can often become important mentors to their players. Nonetheless, few studies have examined the characteristics of youth who form mentoring relationships with coaches and whether such relationships are associated with later academic outcomes. This study utilized data from the National Longitudinal Study of Adolescent to Adult Health to address these gaps in the literature. Gender, ethnicity, socioeconomic status, and parent marital status were associated with coach mentorship. Coach mentorship was associated with high school and college completion, even after controlling for sports participation and academic grades. Findings highlight the formative role that coach mentors can play in adolescents' academic success and suggest that differential access to this resource may have long-term consequences for youth.

Natural mentoring relationships (i.e., naturally occurring, organically developed bonds between youth and nonparental adults) are a critical protective resource for youth, promoting a range of positive academic outcomes during adolescence and the transition to adulthood. Although adolescence is marked by increased risk of school dropout (Wang & Fredricks, 2014) and emotional distress (Owens, Shippee, & Hensel, 2008), research indicates that youth with at least one natural mentor are more likely to graduate high school (Klaw, Rhodes, & Fitzgerald, 2003), attend college (DuBois & Silverthorn, 2005a), and obtain higher overall educational attainment (Miranda-Chan, Fruiht, Dubon, & Wray-Lake, 2016; Erickson, McDonald, & Elder, 2009) compared to those without natural mentors. Having a relationship with a natural mentor during adolescence is also associated with more positive attitudes toward school (Zimmerman, Bingenheimer, & Notaro, 2002), fewer school absences, higher expectations for education attainment and success, and a greater sense of school belonging (Sanchez, Esparza, & Colón, 2008). Academic success during adolescence and the transition to adulthood can in turn have crucial implications for later psychosocial and financial well-being. For example, attainment of a high school diploma is associated with higher income and career status, while high school dropout is associated with poorer physical and mental health outcomes (Child Trends Databank, 2015). Thus, investigating factors that promote youth academic success during adolescence is paramount for long-term positive development.

Despite these academic benefits, a relatively minimal amount is known regarding the correlates and impact of specific types of natural mentoring relationships on school performance. Some studies have compared the prevalence and impact of broad mentoring categories, such as kin and nonkin (Chang, Greenberger, Chen, Heckhausen, & Farruggia, 2010) or kin, school, and community mentors (Erickson et al., 2009). To date, however, few studies have focused on the role of athletic coaches as mentors and their contribution to academic success. Given the widespread engagement in youth sports teams and leagues, and the potentially vital role of caring coaches in advancing a range of positive developmental outcomes, additional research is needed.

Participation in individual and team sports is one of the most common extracurricular activities among youth. In the United States, approximately 45 million children and adolescents participate in organized sports, and three out of four families with school age

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children have at least one child participating in sports activities (Merkel, 2013). Moreover, engagement in youth sports has been linked to a host of academic and psychosocial benefits for youth. Youth sports involvement is positively associated with school grades, attendance, preference for more challenging classes, attaining educational goals, and improved college attendance (Eccles & Barber, 1999; Fraser-Thomas, Côté, & Deakin, 2005; Van Boekel et al., 2016). Participation in high school varsity sports, specifically, is positively associated with achievement in reading, math, civics, science, and vocabulary (Yeung, 2015).

The long-term benefits of engagement with youth sports are likely due to a range of factors, including exposure to prosocial values and peers (Eccles & Barber, 1999; Rehberg, 1969), as well as improvements in self-esteem and personal and social self-efficacy (Eccles & Barber, 1999; Rehberg, 1969). Likewise, sports participation provides a context for learning mastery, persistence, and self-discipline (Fraser-Thomas et al., 2005; Yeung, 2015). However, it is also possible that youth sports exert an influence on academic and psychosocial functioning by providing opportunities for extended interaction with caring and supportive coaches who hold youth to high standards of performance.

In youth sports, the coach is a vital part of the athlete's experience for a number of reasons. Ample research has suggested that coaches play a pivotal role in setting the emotional tone for the team. Indeed, at the most basic level, good relationships with coaches ensure that youth stay around long enough to reap the developmental benefits reviewed above. Unfortunately, coach difficulties are one of the main reasons youth quit sports (Seefeldt et al., 1989). Annually, about 35% of children and adolescents drop out of sports, with middle to late childhood being a particularly common time for attrition (Temple & Crane, 2016). Quantitative and qualitative studies, as well as literature reviews, have identified negative coaching relationships as the most influential factor in youth's decisions to drop out of sports (Garcia, 2015; Keathley, Himelein, & Srigley, 2013; Rottensteiner, Laasko, Pihlaja, & Konttinen, 2013; Temple & Crane, 2016). Coaches are not only critical to youth maintaining involvement, but they also serve a wide range of functions and can take on an influential role in young athletes' lives. Coaches are able to develop an athlete's technical skills and transform them from novice to expert. In addition to teaching technical skills, preventing attrition, and providing a wide range of other beneficial functions to their athletes, coaches can sometimes become natural mentors to youth, helping shape their identity and life outcomes.

Memoirs and autobiographical accounts of athletes often provide anecdotal evidence of coaches who become mentors and provide support both on and off the field. For example, writer E.M. Swift described the enduring influence of his coach in shaping his identity and character during adolescence:

> "It was as if he said, 'If you can finish first with that kind of effort, imagine the other things you can accomplish.' I don't think it was the winning that was important to me that day. It was the discovery that I really had more determination and effort than I thought" … So we learned. Without even knowing it, we learned. How to win and lose. How to practice. To hustle. To be accountable for our actions. To laugh at our mistakes. After we left the Day School, we went on with our lives, but within each of us Coach Ward's voice lived on … (Blauner, 2011, pp. 21, 24).

Despite the prevalence of powerful testimonials, few studies have used empirical methods to delve into the role and influence of coaches who become mentors to their players. One small study of eight full-time college basketball and volleyball coaches found that coach mentoring functions fell into two developmental categories: a commitment to players' intellectual competence (e.g., placing academic goals before athletic goals, stressing the importance of education and degree obtainment, guiding student course selection, holding time management workshops, monitoring athlete academic achievement), and a commitment to players' personal competence (e.g., modeling and teaching transferable life skills such as cooperation, communication, self-confidence, discipline, and commitment; Miller, Salmela, & Kerr, 2002). Several other studies have elaborated on the supportive roles that coaches can play, including providing friendship, serving as a role model, and advancing technical skills, self-confidence, self-management (Choi, Park, Jo, & Lee, 2015; Hoffmann & Loughead, 2016), and life skills (Gould, Collins, Lauer, & Chung, 2007). They may also provide vocational and psychosocial support, opportunities for taking on challenges, exposure to teammate relationship development, intellectual and creative stimulation, and foster professional and personal growth on and off the field through providing friendship, counseling, acceptance, and acting as a role model and parent (Hoffmann & Loughead, 2016).

Rhodes' (2005) model of mentoring may help to explain the developmental pathways through which coaches can influence their athletes' academic success.

The core processes outlined by this model include socioemotional, identity, and cognitive development. Natural mentors provide youth with a supportive, caring adult that can help youth build working models for relationships and interpersonal skills (e.g., effective communication, emotion regulation). Additionally, mentors can foster youths' identity development by introducing them to new activities, interests, or perspectives, and acting as role models. Finally, mentors may promote youths' cognitive development through directly teaching skills or encouraging youth to engage in abstract and critical thinking or tasks that require other executive functioning skills.

The skills gained from engagement in sports—as well as mentoring relationships—such as self-regulation, turn-taking, postponing gratification, and discipline, are also necessary to be successful in school. As such, coaches may act as mentors to yield key positive youth development outcomes, namely, academic success. Coach mentors may be uniquely positioned to promote academic engagement among their players. Unlike other commonly nominated natural mentors, such as teachers, coaches often are positioned adjacent to, but not fully within, academic domains, allowing them to provide guidance, encouragement, and accountability without directly intervening and encroaching on youth's budding sense of independence (Gould et al., 2007; Miller et al., 2002).

Although research has suggested that involvement in sports is associated with these positive developmental outcomes, few studies have explicitly examined coach mentors as sources of the positive outcomes that develop through sports participation. Furthermore, a minimal amount is known about the factors that might foster or impede youth connections with coaches, including youth sociodemographic characteristics that influence the availability of in-school and extracurricular sports programs. Youth from low-income, single-parent, and ethnic and/or racial minority families tend to have fewer extracurricular choices, greater difficulties covering costly extracurricular activity fees, and transportation problems that interfere with consistent extracurricular involvement (Douthitt, 1991; Duffett, Johnson, Farkas, Kung, & Ott, 2004; Mohl & Patel, 2015; Sagas & Cunningham, 2014). In fact, evidence suggests that the lowest sport participation rates are among youth from households with annual incomes totaling $35,000 or less, while the highest participation rates are for youth from households with incomes totaling $75,000 or more annually (Sagas & Cunningham, 2014). Historically, Black and African-American individuals have been excluded from sports in both professional and recreational contexts, and Asian females and Hispanic males are currently the least likely demographic groups to be involved in sports (Sagas & Cunningham, 2014). Furthermore, youth from single-parent families are less likely to be involved in athletics during childhood and adolescence (Sagas & Cunningham, 2014), partially explained by having less leisure time than children from two-parent families (Douthitt, 1991). Whereas two-parent families often have two incomes to support their children, single parents may have less time, energy, and financial resources to encourage their children to participate in extracurricular activities where they would have opportunities to engage and connect with other caring adults. Beyond access to sports, research also demonstrates that generally, youth who live with intact (two-parent biological) families, as well as youth who are White, rather than from marginalized ethnic and racial backgrounds, are more likely to have mentors (Erickson et al., 2009; McDonald & Lambert, 2014).

Despite the passing of Title IX of the Education Amendments of 1972, which protects against sex-based discrimination in educational programs, gender disparities also remain in youth sports participation and physical activity. In general, females tend to participate in arts-based activities such as band, and school involvement activities such as student government, while males participate in sports at higher rates (Cairney, Joshi, Kwan, Hay, & Faught, 2015; Perkins et al., 2007). These gender-stereotyped preferences might stem from societal expectations about male participation in sports, as well systematic barriers to female involvement in sports, such as a more restricted range of female sports teams offered through school settings (Sagas & Cunningham, 2014). Ultimately, the aforementioned evidence suggests that various sociodemographic disparities in youths' access to sports activities may, in turn, translate into a lower likelihood of coach mentor acquisition.

Current study

As previously noted, adolescence is a time of increased risk for school dropout (Wang & Fredricks, 2014) and emotional distress (Owens et al., 2008). As adolescents begin to gain independence and individuate from their family, they are also faced with crucial decisions about their future. Academic engagement and success can often be fostered through adolescents' relationships with nonkin adults (Chang et al., 2010), making natural mentors uniquely positioned to be

helpful resources during this critical transitional stage. However, a minimal amount is known regarding the role of specific types of natural mentors, particularly coaches, in fostering positive academic outcomes. To address these gaps in the literature, the current study examined the prevalence and influence of coach mentors, as well as sociodemographic predictors of access to coach mentors. Analyses used data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative study of adolescent social, environmental, behavioral, and biological functioning over time. The longitudinal data allowed for an examination of the associations between coach mentoring during the adolescent years and later key academic outcomes including high school and college completion. Moreover, the use of a large sample, representative of the United States in terms of race, gender, and socioeconomic status, enabled us to better explore the sociodemographic characteristics of youth who acquire coach mentors.

Our first research question examined the association between athletic coach mentorship during adolescence or emerging adulthood and later academic outcomes. First, we expected that youth who reported having a coach mentor would be more likely to graduate high school and complete college than their peers with no mentor or any other kind of natural mentor. Our second research question aimed to examine the sociodemographic predictors of coach mentorship. We hypothesized that youth who were male, White, had higher socioeconomic status, and intact biological families (i.e., having married parents) would be more likely to report having a coach mentor.

Methods

Participants and procedure

This study used data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative sample of adolescents and young adults from 132 schools, with four waves of data collected over 14 years from 1994 to 2009 (Harris et al., 2009). Add Health used a multistage, school-based cluster probability design in which 80 nationally representative high schools and 52 feeder schools were selected based on region in the United States, school type and size, urbanicity, and ethnicity (Harris et al., 2009). To assess our hypotheses, analyses drew on survey data from Waves I, III, and IV of the Add Health study. Consistent with Add Health data standards and previous studies using the mentoring module from Add Health (Dubois & Silverthorn, 2005b; Erickson et al., 2009), youth were only included if they were part of the nationally representative sample (i.e., had valid sample weights at Waves I, grades seven through 12; III, ages 18 to 26; and IV, ages 24 to 32) resulting in a sample of 12,288 eligible for the analyses. There was no information on mentoring for 35 participants, who were removed from the analyses, resulting in a final analytical sample of 12,253. Surveys at each wave assessed a range of health and achievement-related factors that could be associated with participants' social, economic, psychological, and physical well-being, as well as participants' social environments, including information about their families, neighborhoods, schools, and peer relationships.

Measures

Sociodemographic variables

At Wave I, participants were asked to indicate their gender, which was coded as a dichotomous variable (0 = male, 1 = female). Participants were also asked to report on their ethnicity by responding "yes" or "no" to: "Are you of Hispanic or Latino origin?" and to identify their race by choosing one or more of the following: White, Black, or African American, American Indian or Native American, Asian or Pacific Islander, or Other. Consistent with coding procedures from previous studies of race and ethnicity in this sample, participants who identified as Hispanic or Latino were eliminated from any other race category, and participants who marked more than one race were recoded so that they were placed into only one racial category (Harris et al., 2009).

Participants' parents reported on their marital status as single, married, widowed, divorced, or separated, which was used to create a series of dummy variables for household structure. Socioeconomic status (SES) was assessed by parent report of total household income, estimated in thousands of dollars. We used the natural log of this variable for the purposes of multiple imputation (see Analytic Procedures) but then exponentiated it after the imputation process to return it to its original metric. Then, we divided the exponentiated variable by 10 to scale it to units of ten-thousand dollars (i.e., coefficients from analytical models represent a one-unit change of $10,000). We note that although the distribution of income is right-skewed, we estimated models with the logged version of the variable. Because inferences for both models were the same, we present the nonlogged version due to the more straightforward interpretation.

Sports participation

In the Wave I in-school survey, youth were asked about their involvement in 33 sport and nonsport extracurricular activities (e.g., sports, arts, academic, and leadership activities). A sum score was created by adding the number of sports in which youth participated. Sports participation has been demonstrated in the literature to be positively associated with later academic success. Therefore, participation in sports was included as a covariate to determine the variance accounted for by coach mentorship above and beyond the variance explained simply by participation in sports activities.

Baseline academic grades

At Wave I, participants were asked about their grades in language arts, mathematics, history or social studies, and science. Participants were considered as having valid data if they marked a response option of A, B, C, or D or lower. These responses were recoded numerically with lower numbers indicating lower academic grades (i.e., A = 4.00; B = 3.00; C = 2.00; D or lower = 1.00). Participants who indicated that they never took the subject, had a different grading system, or did not know their grade were considered to have missing data. The average (mean) grade across school subjects was calculated so that participants who had at least one valid subject grade could be included in analysis. This variable served as a proxy for baseline academic functioning. Grades were included as a covariate in analyses to help statistically account for the possibility that high academic achievement in Wave I, rather than coach mentorship, was predictive of later academic outcomes during Wave IV.

Natural mentoring relationships

At the Wave III follow-up, participants (ages 18 to 26) were asked to respond "yes" or "no" to the following question: "Other than your parents or stepparents, has an adult made an important positive difference in your life at any time since you were 14 years old?" Youth who answered "yes" were asked the following question: "How is this person related to you? If there has been more than one person, describe the most influential." Youth were provided a list of 21 options that described the mentor's relationship to them (e.g., sibling, teacher, coach), and were asked to indicate the age at which the mentor became important to them. Consistent with previous research, participants who reported having a younger sibling or spouse mentor for this question were recoded as not having a mentor, because these individuals are not typically considered to be natural mentors (Ahrens, DuBois, Richardson, Fan, & Lozano, 2008).

Academic achievement

When participants were ages 24–32 (Wave IV), they were asked to indicate the highest level of education they had achieved to date. Responses were recoded into two dichotomous variables. The first was coded 1 if respondents had at least received a high school diploma or equivalent and 0 if not. The second was coded 1 if respondents had at least graduated from a four-year college and 0 if not.

Analytic procedures

Prior to analyses, missing data were addressed using multiple imputation with chained equations. Although complete case analysis or listwise deletion (i.e., removing observations with missing values) is a commonly used approach, it reduces the efficiency of estimates and can result in biased estimates if data are not Missing Completely at Random (MCAR), which is rarely true with survey data. Multiple imputation with chained equations makes the more realistic Missing at Random (MAR) assumption and allows for imputation conditional on the distribution of the missing data (e.g., nominal, binary, continuous). Twenty-five imputed datasets were created (Graham, Olchowski, & Gilreath, 2007) using *mi impute* in Stata 15.1. Datasets were separated by 200 iterations because graphical diagnostics indicated the imputation model converged well before that point (Enders, 2010).

All models were estimated on the resulting datasets separately and then combined using Rubin's rules using Stata's *mi estimate* prefix. Stata's *svy* prefix was also used to incorporate the weights and sampling design. All analyses include the Add Health sample weights that were designed make analyses representative of the population of the United States when measures are drawn from Waves I, III, and IV and also address the clustered (school-based) nature of the sample. The result is that point estimates are unbiased estimates of population parameters and standard errors are corrected for the correlated nature of the school-based sample (Chen & Chantala, 2014).

To address our first research question, we estimated logistic regression models in Stata 15.1 for each academic outcome (i.e., high school completion, college completion) using the presence of a coach mentor, a non-coach mentor (e.g., teacher, extended family member), or not having a mentor as predictors (Table 1). Demographic controls included race,

Table 1. Logistic regression testing the association between coach mentorship and high school completion.

Variable	Coef.	OR	SE	*p*-value	95% CI
No mentor	−1.73	0.18	0.10	<0.01	0.06–0.56
Other kind of mentor	−1.21	0.30	0.17	0.04	0.09–0.94
Hispanic	−0.13	0.88	0.16	0.48	0.61–1.26
Black/African American	−0.05	0.95	0.15	0.75	0.70–1.30
Asian	0.96	2.62	0.93	<0.01	1.30–5.29
Native American	−0.69	0.50	0.17	0.05	0.25–0.99
Other race	−0.02	0.98	0.51	0.97	0.35–2.76
SES	0.23	1.26	0.05	<0.01	1.17–1.37
Gender	0.20	1.22	0.12	0.04	1.01–1.48
Grades	1.18	3.26	0.28	<0.01	2.75–3.86
Sports participation	0.06	1.07	0.05	0.20	0.97–1.18

Note. Covariates include race, SES, gender, grades, and participation in sports.

Table 2. Sociodemographic factors predicting report of having an athletic coach natural mentor compared to no mentor and another type of mentor.

Variable	RRR	Std. Err.	*t*	*p*-value	95% CI
No Mentor					
Hispanic	2.68	0.81	3.28	<0.01	1.48–4.87
Black/African American	1.07	0.24	0.29	0.77	0.68–1.67
Asian	1.42	0.60	0.82	0.42	0.61–3.29
Native American	0.96	0.43	−0.10	0.92	0.40–2.32
Other race	1.35	0.79	0.52	0.60	0.43–4.28
SES	0.95	0.01	−2.99	<0.01	0.92–0.98
Gender (female)	2.60	0.42	5.93	<0.01	1.89–3.57
Single parents	4.35	2.68	2.39	0.02	1.28–14.75
Widowed parents	3.95	2.62	2.07	0.04	1.05–14.80
Divorced parents	1.50	0.36	1.69	0.09	0.93–2.42
Separated parents	1.18	0.48	0.41	0.68	0.53–2.67
Other Kind of Mentor					
Hispanic	1.76	0.47	2.11	0.04	1.04–2.98
Black/African American	0.99	0.22	−0.06	0.95	0.64–1.52
Asian	1.14	0.49	0.31	0.76	0.49–2.67
Native American	0.80	0.34	−0.53	0.60	0.35–1.84
Other race	0.77	0.44	−0.45	0.65	0.25–2.39
SES	0.98	0.01	−1.78	0.08	0.97–1.00
Gender (female)	2.97	0.46	7.08	<0.01	2.19–4.02
Single parents	3.51	2.15	2.05	0.04	1.04–11.82
Widowed parents	3.09	1.97	1.77	0.08	0.87–11.01
Divorced parents	1.41	0.33	1.49	0.14	0.89–2.24
Separated parents	0.92	0.35	−0.22	0.83	0.43–1.96

Note. RRR = Relative risk ratio.

socioeconomic status (i.e., income), and gender. Baseline academic grades and participation in sports were included as school-related controls. Odds ratios were interpreted as effect sizes based upon the equivalents outlined by Chen, Cohen, and Chen (2010): Odds ratios of 1.68, 3.47, and 6.71 are respectively equivalent to Cohen's $d = 0.2$ (small), 0.5 (medium), and 0.8 (large).

To address our second research question, a multinomial logistic regression model was estimated to identify predictors of mentoring relationships (Table 2). The reference for the outcome was having a coach mentor so coefficients for not having a mentor and having a non-coach mentor are relative to having a coach mentor. Predictors included race, SES, gender, and parent's marital status. Relative risk ratios (RRR) were interpreted as effect sizes where 2, 3, and 4, respectively, represent small, medium, and large effects (Kim, 2015).

Results

Descriptive statistics

Full descriptive statistics and a correlation matrix for key study variables are presented in Table 3. All continuous variables fell within the normative range for skewness and kurtosis, and there were no significant outliers. In the final sample, 73% ($n = 8945$) of participants reported having a mentor. Approximately 2.8% ($n = 343$) of the sample identified a coach or athletic director as their primary natural mentor during adolescence, a rate comparable to the prevalence of natural mentors who were maternal grandmothers (2.6%), uncles (2.6%), minister/priest/rabbi/religious leaders (2.0%), employers (2.0%), coworkers (2.0%), or friend's parents (2.1%). Coach mentors were more prevalent as natural mentors than maternal grandfathers (1.3%), paternal grandparents (0.9% grandmothers; 0.5% grandfathers), neighbors (0.6%), and doctor/therapist/social workers (0.2%). These statistics support film, book, and other popular accounts of the importance of coaches in youths' lives.

Main analyses

For our first research question, a logistic regression analysis revealed that having a coach mentor was associated with an increased likelihood of high school completion compared to youth with no mentor as well as youth with another kind of natural mentor. This outcome emerged after controlling for the effects of demographic covariates and baseline participation in sports and academic grades (see Table 1). Similar results were demonstrated in another logistic regression analysis examining the association between coach mentorship and college completion. Compared to those with no mentor and those with another kind of natural mentor, having a coach mentor was associated with college completion (see Table 4). Results comparing youth with no mentor to youth with coach mentors approached a large effect size for high school completion and approached a medium effect size for college completion. When comparing youth with coach mentors to youth with another type of natural mentor, these effect sizes decreased slightly, with medium sized effects for high school completion and small effects for college completion.

Finally, for our second research question, effect sizes ranged from small to large for youth who

Table 3. Descriptive statistics and correlation matrix for key study variables.

Variable	% of sample	*M (SE)*	Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender (female)	49.40	–	–														
2. Hispanic	11.90	–	–	−0.02													
3. Black/African American	16.00	–	–	0.05	−0.22												
4. Asian	3.60	–	–	−0.03	−0.12	−0.14											
5. Native American	2.00	–	–	−0.01	−0.06	−0.07	−0.04										
6. Other race	0.93	–	–	−0.01	−0.04	−0.05	−0.03	−0.01									
7. White	65.60	–	–	−0.01	−0.46	−0.56	−0.29	−0.15	−0.10								
8. Socio-economic status	–	4.62 (0.15)	0–99.90	0.00	−0.10	−0.12	0.06	−0.01	0.01	0.14							
9. Married parents	72.90	–	–	0.03	0.02	−0.26	0.06	0.00	0.02	0.17	0.24						
10. Has a mentor	73.00	–	–	0.01	−0.08	−0.00	−0.00	0.00	−0.01	0.06	0.05	0.03					
11. Has coach mentor	2.80	–	–	−0.09	−0.03	−0.01	−0.01	0.01	0.01	0.03	0.04	0.03	0.11				
12. Number of sports	–	1.18 (0.03)	1–13	−0.10	−0.11	−0.02	−0.03	0.03	0.00	0.10	0.09	0.05	0.06	0.13			
13. Grades	–	2.80 (0.02)	1–4	0.13	−0.11	−0.11	0.08	−0.02	0.03	0.13	0.15	0.13	0.12	0.06	0.11		
14. High school completion	91.60	–	–	0.05	−0.04	−0.02	0.04	−0.04	−0.00	0.04	0.11	0.08	0.09	0.04	0.06	0.26	
15. College completion	31.20	–	–	0.08	−0.09	−0.04	0.09	−0.04	0.01	0.06	0.24	0.13	0.13	0.08	0.11	0.45	0.20

Note: Socioeconomic status in ten thousands of dollars.

Table 4. Logistic regression testing the association between coach mentorship and college completion.

Variable	Coef.	OR	SE	*p*-value	95% CI
No mentor	−1.03	0.36	0.07	<0.01	0.24–0.53
Other kind of mentor	−0.59	0.55	0.10	<0.01	0.38–0.80
Hispanic	−0.13	0.88	0.13	0.39	0.66–1.17
Black/African American	0.18	1.20	0.20	0.29	0.85–1.68
Asian	0.64	1.89	0.41	<0.01	1.23–2.90
Native American	−0.50	0.61	0.18	0.09	0.34–1.08
Other race	0.02	1.02	0.36	0.95	0.51–2.04
SES	0.15	1.16	0.02	<0.01	1.12–1.20
Gender	0.17	1.19	0.08	0.01	1.04–1.36
Grades	1.57	4.79	0.29	<0.01	4.25–5.41
Sports participation	0.11	1.11	0.03	<0.01	1.06–1.17

Note. Covariates include race, SES, gender, grades, and participation in sports.

identified with several characteristics of sociodemographic privilege (Kim, 2015). When compared to youth with no mentor, youth who reported having an athletic coach as a primary natural mentor during adolescence and the transition to adulthood were more likely to be White than Hispanic, have higher socioeconomic status, be male, and more likely to have married parents than have a single or widowed parent (see Table 2). Similarly, when compared to youth with another type of natural mentor, youth with coach mentors were more likely to be White than Hispanic, be male, and have married parents than have a single parent. In this analysis, higher socioeconomic status was also marginally statistically significantly predictive of having a coach mentor (see Table 2).

Discussion

Interpretation of findings and implications

The current investigation drew on a nationally representative sample of adolescents to explore the prevalence of coach mentors, to test whether having a coach mentor was associated with youths' later academic success (i.e., high school and college completion), and to determine sociodemographic characteristics associated with identifying a coach mentor during adolescence. To our knowledge, this is the first study to use quantitative methods to examine longitudinal associations between athletic coach mentors and adolescent developmental outcomes.

Consistent with previous research highlighting the beneficial role of mentorship on academic outcomes, effect sizes were substantial, ranging from medium to large, when youth with coach mentors were compared to youth without mentors. These effects decreased slightly when the comparison group was youth with other types of mentors. It is possible that youth may have other common natural mentors during adolescence (e.g., teachers) who are playing an equally strong role in promoting academic success. It is also possible that individual traits such as academic motivation or executive functioning skills may be interacting with the benefits of mentorship. For example, simply by virtue of being admitted, individuals who attend college have some baseline level of academic success and persistence. These characteristics, in addition to receiving mentorship from a coach, may help to explain their completion of college. Further research is necessary to parse out the temporality, direction, and influence of these variables.

Perhaps most importantly, the findings from this study demonstrate the importance of coach mentors, even when comparing to other types of natural mentors that a youth may have. This study is among the first to examine the relationship between youths' academic success and coach natural mentors. Clearly, coaches have a particular salience in promoting academic success. Overall, these findings build on past research indicating the beneficial effects of sports involvement on youth academic engagement (Eccles &

Barber, 1999; Fraser-Thomas et al., 2005; Van Boekel et al., 2016; Yeung, 2015). However, results suggest that mentorship from a coach appears to be influential above and beyond the benefits youth gain from simply participating in sport activities. Moreover, coach mentors appear to have an impact on academic persistence when co-varying for baseline academic grades, suggesting that it is not merely the best students who both connect with coach mentors and go on to succeed academically. Given that coach mentorship was associated with academic success even when compared to other types of natural mentors, sports contexts may be particularly powerful contexts for youth to develop social capital and skills. Research suggests that youth can gain skills such as discipline, self-efficacy, and mastery through participation in sports (Eccles & Barber, 1999; Fraser-Thomas et al., 2005; Yeung, 2015). When youth gain these skills, there are indeed collateral benefits. These skills have the potential to transfer to other domains of a youth's life, including academics. Consistent with Rhodes' (2005) model of mentoring, our findings suggest that coaches may be playing a critical role in developing youths' identity, social-emotional, and cognitive skills that also help lead to academic success. Future studies should investigate what functions coach mentors serve during adolescence that in turn play such a critical role in promoting academic outcomes. This can be accomplished by directly examining whether the academic benefits of coach mentorship are explained by youths' development of executive skills such as self-regulation, discipline, and time management.

Findings also point to several sociodemographic factors that may influence access to coach mentors during adolescence and the transition to adulthood. Male youth were more likely than female youth to endorse having a coach mentor, despite general trends for female adolescents to identify natural mentors more frequently (Erickson et al., 2009). Females are less likely to participate in sports, likely in part because of fewer societal expectations regarding their participation and reduced access to a wide variety of sports teams (Sagas & Cunningham, 2014). Although gender disparities have lessened over the past 30 years partly due to the implementation of Title IX, males continue to have significantly greater access to school and community sports, with an average of 1 in every 2.4 girls as compared to 1 in every 1.7 boys participating in high school sports nationally (Sagas & Cunningham, 2014; Woods, 2011). Likewise, students from lower SES backgrounds were less likely than their more privileged peers to nominate a coach mentor. There are significant costs (i.e., pay-to-play fees, equipment, time) associated with sports participation, and income has been consistently associated with youth sports participation (Sagas & Cunningham, 2014). Particularly given the impact of coach mentors on academic outcomes, it is important to consider the potentially far-reaching implications of policies that restrict access to sports participation for certain kinds of youth.

Interestingly, only certain parent marital statuses and ethnic/racial identities were significant predictors of coach mentorship. Consistent with previous research on mentoring relationships, youth who live in intact biological families are more likely to have a mentor (Erickson et al., 2009; McDonald & Lambert, 2014). Results from the current study reflect these trends, such that youth with widowed and single parents were less likely than youth with married parents to have a coach mentor. Given that single and widowed parents may often indicate only one present caregiver compared to married, divorced, or separated parents, these findings suggest that what may be more critical is the *number* of parents or caretakers available to a youth rather than actual marital status.

Our results provided limited support for our hypothesis on racial disparities in coach mentorship. We found that White youth were more likely to have a coach mentor compared to Hispanic youth, but not other racial minorities. Past research has indicated that racial and ethnic minority youth are less likely to participate in sports (Duffett et al., 2004), and thus have fewer opportunities to form mentoring relationships with coaches. It is possible that this relative discrepancy is due to the link between racial and ethnic identity and socioeconomic status – in our analyses, social class appeared to better account for access to mentoring relationships (Putnam, 2015; Zimmerman, Bingenheimer, & Behrendt, 2005). Future research could continue to parse out the nuances of both parent marital status and ethnic/racial identity in understanding youths' mentoring relationships.

Scholars have recommended that sports-based positive youth development programs incorporate a feminist, sociological perspective and social justice model to acknowledge structural and cultural aspects of young athletes to create a more comprehensive model of positive youth development (Rauscher & Cooky, 2016). For example, sports programs can partner with feminist organizations to draw attention to and address the oppressive systems in young females' lives. Addressing the gender- and class-based barriers to sports participation will ensure that more youth have access to this potentially important developmental

asset (Rauscher & Cooky, 2016). This should include expanding opportunities for affordable sports involvement, particularly in historically underfunded school districts, by decreasing or eliminating pay-to-play fees, providing opportunities for affordable sports equipment, and ensuring equal investment in athletic programs. At the same time, policy makers must be made aware that cuts in extracurricular programs represent lost opportunities, not just for youths' athletic development, but for their academic success.

Training and certification of coaches should acknowledge the potentially powerful mentoring functions of these roles and include specific skills and strategies that could facilitate the formation of such bonds. Research demonstrates that youth with coaches who implement positive reinforcement and encouragement rather than punishment show significant positive psychological outcomes (e.g., Smith, Smoll, & Barnett, 1995; Smith, Smoll, & Curtis, 1979). Additionally, positive developmental outcomes may be fostered especially when coaches incorporate the teaching of life skills (e.g., goal-setting, discipline) and success strategies for other domains, like academics, as part of their typical coaching philosophy (Gould et al., 2007). Along with increased access to youth sports, such training could encourage increased rates of coach-youth relationships, with potentially far-reaching implications for youth academic and psychosocial success beyond sports.

In addition to providing training to coaches, youth should be provided knowledge on how to develop connections with community adults. Youth-Initiated Mentoring (YIM) is a relatively new approach that aims to teach youth to identify and strengthen connections that already exist with adults in their social networks (i.e., schools, neighborhoods, and communities) (Schwartz & Rhodes, 2016). YIM aims to empower youth by teaching them to identify naturally occurring relationships and strategies to continue developing them to achieve positive developmental outcomes. Research demonstrates that this model shows particular promise for older adolescents and those from less privileged backgrounds (Schwartz & Rhodes, 2016).

Limitations

Several limitations of the current study should be acknowledged. First, although we benefitted from multiple waves of data, the associations are not necessarily indicative of causality. It may be the case, for example, that youth who forge close bonds with their coaches are systemically different in ways that also contribute to academic success. For example, superior interpersonal skills or self-regulation might predict close bonds with coaches, as well as academic success. Although there were medium and large effects for some outcomes, other effects were considered small by typical conventions for odds ratios and relative risk ratios in the field. Questions about the mentoring relationship were also asked retrospectively, raising the possibility for biased recall and reporting of information. However, assessing mentoring relationships in such a way allowed us to establish temporal precedence which maximized our ability to draw conclusions about their effects. Future studies using repeated measurement at multiple time points during development are needed to more precisely determine these longitudinal relationships.

Second, youth were asked to provide information only about the most influential natural mentor in their lives, and it is possible that youth had multiple mentors who provided different functions and benefits. That is, youth who reported having other, non-coach mentors could have also had an influential coach mentor. Particularly given the benefits of multiple mentors on youth academic outcomes (Keller & Blakeslee, 2014; Schwartz & Rhodes, 2016), future studies should take into account the effects of networks of social support from multiple sources on youth development. Finally, other dimensions of mentoring relationships such as duration, frequency of contact, closeness, and mentor characteristics (e.g., demographics and experience level of the coach) can also affect their impact (Miranda-Chan et al., 2016). More detailed assessment of the mentor-youth relationship would allow for a better understanding of how these factors interact to predict youth outcomes. Despite these limitations, this study provides valuable information about the potential influence of coach mentors on adolescents' lives.

Conclusion

Adolescence is a time of increased risk for school dropout (Wang & Fredricks, 2014) and emotional distress (Owens et al., 2008). However, academic engagement and success can be forged through adolescents' relationships with nonkin adults (Chang et al., 2010). Thus, community-based natural mentors are uniquely positioned to act as key developmental resources during the critical transition from adolescence to young adulthood. Given that participation in organized sports is one of the most common extracurricular

activities among youth in the United States, athletic coaches have the potential to become important mentors to their players, serving multiple functions and encouraging youth to succeed athletically and academically. Findings from this study provide valuable information about the unique potential influence of coach mentors on youths' later academic outcomes, as well as the associations between youth sociodemographic characteristics and coach mentorship. These results provide the basis for future research investigations that examine how community-based natural mentors can provide the most support to and develop the most impactful relationships with their young protégées.

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