P-ISSN: 2790-6795	Annals of Human and Social Sciences	Jul-Sep 2022,Vol. 3, No. 2
O-ISSN:2790-6809	http://doi.org/10.35484/ahss.2022(3-II)76	[808-820]

Annals of Human and Social Sciences
www.ahss.org.pk

RESEARCH PAPER

Male Field Hockey Players' Academic Performance: How Diet, Financial Support, and Management Play a Role

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ABSTRACT

Much past research on varsity student-athletes mainly emphasized assessing the factors associated with athletic success and performance. Enhancement of academic performance is also an equally important issue in student-athletes' lives that the researchers have ignored to date. This research aimed to examine how factors like management, financial support, and diet affect the academic performance of university student-athletes. The participants were 126 field hockey players from eleven universities. We used a five-point Likert scale questionnaire to gather information for this cross-sectional study. That comprised twenty-four items related to four constructs: management, financial support, diet, and academic performance. The data collection tool exhibited adequate reliability (Cronbach's alpha, .767). We analyzed data using chi-square and simple linear regression tests, and the results indicated that management, diet, and financial support were significantly associated with varsity athletes' academic success. The findings suggest that effective management, sufficient financial assistance, and a healthy diet may contribute to the academic success of university athletes. This study is unique because earlier research mostly neglected student-athletes academics and concentrated on their athletic achievement. At the same time, academic and sports management are essential factors that need to be examined regarding student-athletes' academic progress. The study results have important implications for policymakers and professionals related to higher education, academic performance, sports management, and parents. Further studies are recommended to assess the generalizability of this data's findings.

Keywords: Academic Performance, Diet, Finance, Management, Student-Athletes

Introduction

Student-athletes' participation in university sports demands extreme efforts and a significant amount of time to comply with sports competitions, physical training, and skill practice (Fuster, Caparrós, & Capdevila, 2021). These may augment additional stressors in the life of varsity student-athletes that may reduce their involvement in academic and learning activities and, thus, exert inverse influence on their academic performance (Lopes Dos Santos et al., 2020). Huml, Bergman, Newell, and Hancock (2019) indicated that student-athletes experience various challenges concerning time management, athletic burnout, relations with the sports directorate, admissions, sports stereotypes, athletic identity, and academic load and schedules. In addition, Lopes Dos Santos et al. (2020) observed that increased time in sports participation decreased time available for educational activities and difficulty in time management due to participation in the varsity sport. Participation in varsity sports teams consumed so much time to meet the demands of sports performance, leaving no room for other life activities, including good sleep, proper

diet, completing academic assignments, and study time. Notably, student-athletes diverse challenges, such as meeting athletic commitment combined with academic commitments, academic athletic identification, academic self-worth, perceptions concerning being exploited, and academic preparations, were strong predictors of academic success among student-athletes (Simons & Van Rheenen, 2000). Helping student athletes to dealing with academic challenges and improving academic success has been a significant field of interest in the researcher investigating the context of student-athletes domains (O'Neil, Amorose, & Pierce, 2021; Reich, Milroy, Wyrick, & Hebard, 2021). Practices and policies emphasizing developing models concerning student-athlete support systems and services have become critically important recently (Fogaca, 2021; Grafnetterova & Banda, 2021; King, 2021; O'Neil et al., 2021). In addition, maintaining motivation and facilitating academic pursuits and athletic excellence among student-athletes has been perceived as a critical challenge for sports-related researchers (Linnér, Stambulova, & Henriksen, 2022; Quinaud et al., 2021).

Literature Review

Many management-related approaches have been suggested to help varsity student-athletes deal with their distinct challenges in pursuing their academic performance (Warner, Stokowski, Fridley, & Kim, 2022). One approach emphasized the augmentation of support from the university's sports department (Warner et al., 2022). For example, overtraining and imbalance between rest, recovery, and academic activities appear to lead to academic failure for student-athletes; sports management and coaches can play a pivotal role in helping student-athletes in this regard (Gomez, Bradley, & Conway, 2018). Huml et al. (2019) suggested that developing solid connections between the varsity sports and academic departments and establishing academic advisory services for sports advisers may contribute to dealing with student-athletes' challenges. In addition, it has been suggested that sports coaches and advisors are among the most influential person in the varsity life of the student-athletes and are perceived to have a high impact on athletes' academic performance (Banwell & Kerr, 2016). Apaak and Sarpong (2015) stressed the need to work with mutual consultations among university management, sports administrators, sports coaches, and advisors while planning academic and sports activity schedules. The authors also suggested that serious considerations should be given while planning the educational and sports calendars to avoid physical, mental, and emotional overloading of student-athletes. In light of these findings, there is a need to investigate the role of management related variables to address academic challenges among university student-athletes. Much of the past research has been focusing on investigating the factors that affect sports performance of the student-athletes (GuoJie, 2021) and primarily have been ignoring the importance of academic aspect of student-athletes in the university settings. Thus, it seems significantly essential to assess the influence of sports management (e.g., director, coaches, and advisors) and academic management on academic performance of university student-athletes, in particular, in the realm of the game of field hockey.

Financial incentives are suggested to be an essential factor in student life. In some studies, it has been reported to enhance the academic performance of non-athlete students (Herranz-Zarzoso & Sabater-Grande, 2018), while others reported its negative effect on academic achievements (Castro, Yamada, Contreras, Linares, & Watson, 2021). Studies assessing the impact of financial-related variables on academic performance are incredibly scarce. For example, a survey by Milton, Freeman, and Williamson (2012) found that student-athletes who received scholarships performed better academically than those who did not. However, this study examined one finance-related factor (scholarship only). Support during competitions, a satisfactory level of the players from the financial support during other variables including spending sufficient finance and funds on matches and training, the spending of funds for the promotion of athletes and sport, provision of opportunities of an excellent financial carrier as a student-athlete, and observance of merit in admissions on sports basis in academic departments of the university also considered

important variables in university settings. To date, insufficient evidence exists on the findings explaining the effect of finance related factors on academic performance of university athletes. In particular, how monetary incentives including travel allowances for sports competitions, special daily financial allowance during competitions, sports scholarships, finical awards based on good sports performance and support for good carrier after university education by university and sports administrators influence academic performance? The inquiry question in the context of field hockey varsity student-athletes remained unclear and needs to be addressed.

Sufficient quality and quantity of nutrition and diet are essential for university athletes' cognitive and physical health for optimal sports and academic performance (Mujika & Burke, 2010). Field hockey is a team sport requiring its players to be in peak physical condition. Research has shown that male field hockey players cover 5,820 m to ~10,000 m of distance during the game with low to moderate exercise intensity (Lidor & Ziv, 2015). These place a substantially higher physical and physiological load on hockey athletes (Lidor & Ziv, 2015). Adequate food intake and proper diet are critically essential for recovery and preparation for upcoming training sessions and competitions (Choi, Lee, Youm, Park, & Chung, 2022; Mujika & Burke, 2010; Rosa-Lima, Lannes, Viana-Gomes, Pierucci, & Salerno, 2015). Student-athletes perceive the unique requirements of food intake and nutritional demands as stressors (Wee et al., 2021). In addition, most student-athletes do not have sufficient dietary knowledge and appropriate eating behaviour (Davar, 2012). Providing an adequate diet and guidance concerning proper nutrition meets the field hockey players' physical and physiological needs. Previously, much attention has been given to assessing the relationship between diet and sports performance (Renard, Kelly, Chéilleachair, & Catháin, 2021). However, there is a shortage of research into how student-athletes diets affect their academic performance. Empirical evidence revealed a positive relationship between eating habits and educational achievement among varsity students who are not athletes (M. Whatnall, A. Patterson, T. Burrows, & M. Hutchesson, 2019). Is there any link between diet and academic performance among varsity student-athletes or not; this question still needs to be address.

In line with the above arguments, this study aimed to determine the effects of university and sports management factors, financial incentives, and diet on the academic performance of male field hockey varsity players. It was hypothesized that all three variables (supported by varsity and sports management, financial incentives, and diet) might positively affect academic performance.

Material and Methods

Participants

The population for this study was university teams of male hockey players taking part in the intervarsity hockey championship organized by the higher education commission, Pakistan. A convenient sampling technique included 176 hockey players (males) from eleven teams in this study's sample. Participants' ages ranged from 19 to 24 years. Varsity hockey players participated in the study voluntarily with informed consent.

Instrument

We utilized a cross-sectional design for this study. Data was collected through a 24-item five-point Likert-type questionnaire. The lead investigator interviewed ten varsity field hockey players to gather information for this study's instrument. The author interviewed hockey players to identify crucial elements under each framework. We discussed each construct's items after interviewing each athlete. Finally, five experts—a PhD sports scientist, a national-level hockey player, a hockey coach, a master's-level sports science student, and a PhD social scientist—discussed the appropriate number. The other

researchers only evaluated field hockey university athletes' needs during tool creation. The reliability of the instrument was evaluated through pilot testing. The Cronbach's alpha of the questionnaire was .767 showing sufficient reliability.

Participants were required to choose one of five possible replies to each questionnaire item (strongly agree, agree, uncertain, disagree, or strongly disagree). Each dimension of the questionnaire—sports scholarship and financial perks, supportive attitude of varsity and sports management, diet, and academic performance—varied. The supportive attitude of varsity and sports management includes merit-based team selection, helpful and cooperative sports management, satisfaction with sports management, and academic leave for sports training and competitions. Six items regarding financial support during matches, a satisfactory level of players from the financial support during competitions and training provided by the university, level of satisfaction with the spending of funds for sport, expectations, and opportunities of an excellent career as a hockey player, the importance of sports basis admissions in academic departments for the promotion of hockey, and availability of sports scholarship.

Eight items include appropriate study time, the ability to manage study and sports activities, the usefulness of sports participation for academic performance, balancing class and sports attendance, and class teachers' attitudes toward sports participation. The academic performance construct also included sports involvement, assignment and homework completion, and good grades/marks in exams. Finally, diet included questions about the suitability of diet for sports participation, university support for a healthy diet, players' ability to afford food expenses, the availability of a balanced diet for sports activities, and sports authorities' nutritional guidance and counselling.

Procedure

This study ensured ethical considerations, including participant consent, voluntary involvement, and data confidentiality. The participants could withdraw at any time, and they could ask any study-related inquiry. Participants were promised this study would not negatively impact their lives. Permission for data collection was acquired from team management and coaches, respectively. The lead researcher explained the study's goal to the participants and team officials. Participants were encouraged and trained in questionnaire filling. They must study and comprehend each thing before choosing an option. Researchers gently and cooperatively answered questions about item meanings. All participants were asked if honest and careful answers would benefit this investigation. The data was collected from all volunteers using the same method to reduce bias. One hundred forty-four student-athletes (82%) completed the questionnaires from the whole sample. Eighteen questionnaires were rejected for incomplete responses or missing data on too many items. After the screening, the remaining 126 questionnaires were appropriate for analysis.

Data Analysis

Before conducting the analysis, the items in all four constructs (management, diet, financial support, and academic performance) were grouped by calculating their means using computing functions in the SPSS software version. 20. Dummy variables of each construct were created by categorizing the data into two categorical variables based on respondents' level of agreement. Since the questionnaire format was a five-point Likert scale, the mean score from 1 to 2.5 was considered in the category of yes/agreed, and the mean values from 2.6 to 5 were classified as no/disagree. Thus, the Chi-Square test (2 x 2) was run for categorical variables to assess the association between the variables of interest in this study.

Additionally, for continuous variables, a single linear regression analysis was performed for each pair of dependent and independent variables, considering academic performance as constant (dependent variable) and management performance, diet, and financial incentives as predictors (independent variables). The diagnostic test results for the assumption for leaner regression yielded that the data were suitable for running the simple regression analysis. All assumptions related to linearity, outliers, homoscedasticity, multicollinearity, normality, and independence were sufficiently met. Each value of VIF was below ten. This means that the assumption of multicollinearity was met. No case has an undue influence on regression parameters because there were no compelling cases within our data. All statistical analyses were conducted with SPSS version 20, with the significance level set to 0.05.

Results and Discussion

Chi-Square Tests

Association between Management and Academic Performance

The chi-square test indicated a significant association between management and academic performance of the field hockey varsity student-athletes χ^2 (1, N = 126) = 16.986, p < .001, φ =.367. The contingency table shows that the proportion of better academic performance responses was more significant for better management and vice versa. These findings revealed that the participant's responses in the category of good academic performance were 56.3% in the category of good management. In contrast, the academic performance of 41.3% is in the poor management category. Similarly, 20.0% of the participants responded as poor academic performance related to good management, and 80.0% responded as poor academic performance related to poor management. Thus, significantly greater proportions of good academic performers were associated with good management, whereas a more significant proportion of participants reported poor academic performance was related to poor management. The odds of academic performance were 5.2 times greater if the performance of management was good than poor management (Odds Ratio (OR) = 5.2). Table 1 illustrates the statistical test results for management and academic performance.

Table 1
Frequencies and Chi-Square Results for Management and Academic Performance

Source	Good management		Poor management		χ^2 (1)
	N	*%*	*N*	*%*	
Good academic performance	40	31.7	31	24.6%	16.986***
Poor academic performance	11	8.7	44	34.9	

***P <.001.

Association between financial incentives and academic performance

The chi-square results indicated a significant association between financial incentives and academic performance χ^2 (1, N = 126) = 4.127, p < .05, φ = .181. The responses concerning academic performance patterns significantly differed in the sufficient and insufficient financial incentives categories. The findings reflect that when participants reported sufficient financial incentives, the proportion of good academic responses was more significant (36.6%), compared with the 20.0% of the participants who reported poor performance. This indicated that better and less poor academic performance was associated with sufficient financial incentives. The odds of better academic performance were 2.31

times greater if the financial incentives were sufficient in comparison with the availability of insufficient financial support (Odds Ratio (OR) = 2.31). Table 2 illustrates the details of the results for fiancé and academic performance.

Table 2
Frequencies and Chi-Square Results for Finance and Academic Performance

Source	Sufficient Finance		Insufficient Finance		χ^2 (1)
	n	*%*	*n*	*%*	
Good academic performance	26	20.6	45	35.7	
Poor academic performance	11	8.7	44	34.9	4.127*

*$P < .05$.

Association between diet and academic performance

The analysis yielded that the association between diet and academic performance was also significant for athletes χ^2 (1, N = 126) = 7.942, $p < .01$, φ = .251. The findings revealed that a more significant proportion of good academic performance (29.6%) and a lower proportion of poor academic performance (9.1%) was reported in response to a proper diet. On the other hand, fewer participants reported good performance (70.4%), and a more significant proportion reported poor academic performance (90.9%) in response to improper diet. This finding indicates that a proper diet is significantly associated with better academic performance, and a poor diet is related to poor academic performance. The odds of better academic performance were 4.2 times higher in the case of proper diet than improper diet (Odds Ratio (OR) = 4.2). Table 3 illustrates the details of the results for diet and academic performance.

Table 3
Frequencies and Chi-Square Results for Diet and Academic Performance

Source	Proper Diet		Improper Diet		χ^2 (1)
	n	*%*	*n*	*%*	
Good academic performance	21	16.7	50	39.7	7.942 *
Poor academic performance	5	4.0	50	43.7	

*$P <.005$.

Simple linear Regressions

The simple linear regression analysis yielded that diet, scholarships and financial benefits, and management performance adequately predicted the academic success of field hockey varsity players.

Concerning using management in a regression analysis to predict academic performance, it was revealed that the regression model significantly (F = 38.478, $p < .001$) predicted academic performance and explained approximately 23 % of the variance in academic performance (R^2 = .237, Adjusted R^2 = .231). The model suggests that management significantly enhances student-athletes' academic performance of s student-athletes. Details of regression results are presented in Table 4.

Table 4
Results of simple linear regression

	95%CI

Variables	Beta	*SE*	*LL*	*UL*	B	*p*
Management	.334	.054	.228	.441	.487	.000
Diet	.178	.051	.077	.279	.299	.001
Finance	.229	.061	.108	.349	.320	.000

We also used financial incentives in a regression model to predict academic performance. The results showed that the model significantly (F = 14.131, p < .001) predicted academic success and reported 10 % of the variance (R^2 = .102, Adjusted R^2 = .096). Details of regression results are presented in Table 4.

Regarding using diet to predict academic performance, the analysis showed that the regression model overall significantly predicted academic performance well (F = 12.187, p < .01) and reported 8 % of the variance of academic performance (R^2 = .089, Adjusted R^2 = .082). Details of regression results are presented in Table 4.

Discussion

The factors contributing to athletic achievement have been the subject of much research. It is well-known that academic achievement is just as significant as athletic achievement for student-athletes. One of the most complex parts of being a student-athlete is succeeding in the classroom. This study aimed to determine if varsity field hockey players' academic performance was influenced by university and sports administration, diet, and financial incentives. The administrative approach, monetary rewards, and food significantly affected student performance. An effect size of moderate to substantial significance was observed between management and academic achievement. However, financial incentives and dietary factors appeared to have a moderate effect.

Varsity student-athletes face a unique set of pressures, and one of the most severe is academic difficulty. Our primary results indicate that the administration at the institution and the sports department could successfully boost the academic performance of varsity field hockey players. Student-athletes have a lot of work to do between classes, training, and playing games, and it can be challenging to manage everything at once, such as academic and athletic activities at a time (Apaak & Sarpong, 2015; Cooper, 2016). In particular, supportive attitudes and assistance from sports directorates, including sports coaches, sports advisers, sports directors, assistant and deputy directors of sports, sports doctors, sports physiotherapists, sports councillors, sports trainers, sports nutritionists, and other office-related staff dealing with student-athlete office work, can help varsity athletes. These university sports management can support student-athletes in different ways to reduce or manage particular problems. The university sports department can work with university management and academic departments to create academic and sports schedules that meet student-athletes' needs.

The findings concerning management's effectiveness in improving university student-athletes academic performance are in line with previous research. For example, Miranda-Comas, Zaman, Ramin, and Gluck (2022) suggested that helping student-athletes manage their load (academic and sports participation) can improve academic performance. Facilitation by coaches (Banwell & Kerr, 2016; Weathington, Alexander, & Rodebaugh, 2010), providing counselling and advisory services by varsity and sports management (Brecht & Burnett, 2019; Grandy, Lough, & Miller, 2016), and providing support mechanisms concerning academic and sports-related challenges by university management (Cosh & Tully, 2015; Grandy et al., 2016; McKenna & Dunstan-Lewis, 2004; Ryan, Thorpe, & Pope, 2017) seems essential to enhance academic performance in varsity student-athletes. One possible association between better academic performance and good management (academic and sports) could be that university and sports management help solve student-athlete challenges that might reduce athletes' physical, emotional, social, academic, and

training load. This further contributed to spare space in utilization of physical, emotional, and cognitive resources and student-athletes were able to invest that spared resources to improve their academic performance. The findings suggest that university and sports management need to be effective and efficient in line with academic and sports-related problems and challenges being faced by university student-athletes.

Regarding the influence of financial incentives, this study's results indicated a significant association between finance and academic performance in male field hockey university players. Participants reported more agreement towards financial incentives-related variables (availability of daily financial allowances during competitions, spending of sufficient funds on sports by the university, expectations of bright carrier based on sports, and observation of sports quota and availability of sports scholarship) tended to report better academic performance and the vice versa. The results of this investigation were consistent with those of a prior study, indicating that student-athletes who reported receiving financial benefits (scholarships) reported a higher level of academic performance than student-athletes receiving no financial incentives (Milton et al., 2012). Another study, however, indicated that scholarship student-athletes performed worse academically than their non-scholarship peers (Rubin & Rosser, 2014).

The exact mechanisms underlying significant associations of finance-related factors with the academic performance of university athletes are unknown. However, it seems reasonable to assume that managing financial resources for study and living is a primary stressor in university student-athletes' life. The financial burden is considered among the main stressors for some student-athletes (Cosh & Tully, 2015). It is a possibility that student-athletes have to pay extra costs related to frequent travelling for sports activities (Mah, Kezirian, Marcello, & Dement, 2018) and require a particular need of diet to meet the needs of training load and recovery (Wee et al., 2021), treatment of sports-related injuries (Kay et al., 2017; Wee et al., 2021). Thus, compensations in the form of additional financial incentives and paying the expenditure of athletes may help reduce their financial burden, ultimately reducing psychological pressure and stress since student-athletes face more challenges due to their dual role (student and athlete) in university life relative to their non-athlete counterparts. It is possible that providing financial support by the university may contribute to reducing some burden of finance-related stressors that decrease their level of finance-related worry, resulting in more concentration in their academic activities that improve academic performance. These findings suggest that sufficient funding and financial resources must be allocated for student-athletes to improve their academic performance in universities.

This study also showed a significant relationship between diet and academic success among male university hockey players. Whereas much of the past research mainly emphasized assessing the diet's links with non-athlete students' academic performance. Findings related to student-athletes are lacking. This study found that a sufficient and good diet was related to better performance and vice versa, although the effect size was medium. In this study, the participants reported greater agreement towards diet-related items in the questionnaire (adequate diet, balanced and sport-related required diet, availability of diet-related guidance, affordability of diet expenses) and tended to report better academic performance. Notably, university student-athletes who reported better dietary habits tend to exhibit better academic performance and vice versa M. C. Whatnall, A. J. Patterson, T. L. Burrows, and M. J. Hutchesson (2019). Consistent with our findings, other research has found a link between what you eat and how well you do in academics, though typically just among students who don't participate in sports (Florence, Asbridge, & Veugelers, 2008; M. C. Whatnall et al., 2019).

This study could not have examined how a healthy diet could improve academic performance. However, this study's significant association between these variables seems logical. Availability and consumption of proper diet are related to many physical and

psychological health benefits for students. In particular, for athletes, diet is an essential component for recovery and physiological adaptations after sports training and competitions (Holway & Spriet, 2011; Hull et al., 2017). Conversely, inadequate quality and quantity of diet lead to fatigue, lack of recovery after training, sleep problems (Hoshino et al., 2022), injuries (Malinauskas, Overton, Carraway, & Cash, 2007), reduced quality of life, anxiety and stress in athletes (Christensen et al., 2021; Holway & Spriet, 2011; Renaldo, 2022). This also negatively impacted memory, cognitive functions, and study time. Insufficient recovery, fatigue, injuries, poor sleep, and stress resulting from the improper diet may further lead to an exhibited negative influence on the academic success of varsity athletes. In line with the above discussions, it seems plausible to suggest that a proper diet should be ensured by coaches, sports manager, sport nutritionist, sports administrators, and academic management to improve university athletes' academic performance. The policy makers in higher education settings need to consider proper diet as an important factor for better academic carrier of athletes involved in competitive sports.

Conclusion

In conclusion, the results of this study showed a positive correlation between management, diet, and financial support for varsity male field hockey players and their academic achievement. These results have substantial repercussions for higher education policymakers, professionals working with varsity student-athletes, players, and parents of student-athletes striving to enhance their academic performance. Improving student-athletes' academic success rate at universities can be accomplished by ensuring access to an adequate diet, financial support, and efficient and effective university and sports-related administration.

Recommendations

University and management of sports departments should provide sufficient and practical support to deal with student-athletes sports and academic-related challenges. University and sports-related management and personnel should collaborate closely to address the issues of athletes. Professionals working with student-athletes should consider the issues of proper diet and sufficient financial support for student-athletes for better academic outcomes.

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