

Sports Participation in Relation to Academic Achievement of College Students: A Case Study of Western Kenya

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ABSTRACT

Participation in sports is believed to help students, but data from teacher-training colleges in Kenya remain underexplored. With an emphasis on age and gender as moderating factors, the current study examined the relationship between academic success and participation in extracurricular sports among college teacher trainees in Western Kenya. Using a cross-sectional research design, the study included 2,450 diploma trainees from three Western Kenyan public teacher training colleges. Stratified random sampling was used to choose a sample of 343 trainees. A self-administered questionnaire created by the researchers was used to collect data; in a pilot test with 40 students, the Cronbach's alpha was 0.73. Academic achievement was categorized as either Distinction, Credit, or Pass. Using SPSS version 27, chi-square tests of independence were conducted at a significance level of 0.05. According to the study's findings, participation in sports was strongly associated with academic achievement across age groups ($\chi^2 = 26.293$, $df = 8$, $p = .001$), with trainees aged 19-22 having the highest proportion of distinctions. There was no statistically significant gender difference in academic performance between participants and non-participants ($p = .354$). Overall, female trainees fared marginally better, although this difference was not statistically significant. According to the results, well-structured sports participation helps college students succeed academically, particularly younger trainees. Teacher training colleges in Western Kenya should consider formalizing co-curricular sports programs as part of a broader plan to improve trainee performance and overall development.

INTRODUCTION

Several factors, both curricular and non-curricular, determine academic success among college students. Curricular activities are integrated into the curriculum, allowing students to apply their learning in practical contexts, whereas extracurricular activities are those beyond the curriculum. These co-curricular activities provide students with opportunities to apply their knowledge and develop practical skills. College students may gain practical experience by participating in co-curricular sports activities related to their studies. It is also believed that participation in such activities gives students a competitive advantage in their academic achievement.

Several studies, particularly at the primary and secondary school levels, have examined the relationship between academic achievement and sports-related extracurricular activities. Studies conducted in Kenya and Rwanda (Rotich *et al.*, 2025; Iradukunda & Mugiraneza, 2024), and other countries have shown a positive correlation between participation in sports and academic success. Additionally, research on higher education students has demonstrated that sports participation and co-curricular engagement lead to better academic performance, good health, and personal development (Suraya & Anuar, 2025; Mathunjwa *et al.*, 2025).

The vast majority of previously published research focuses on secondary schools and general higher

education settings, such as universities, leaving specialized middle-level colleges with substantial gaps. Relatively few studies have examined the relationship between extracurricular sports and academic attainment, especially among trainees at Kenyan teacher-training institutions. Research has been conducted in high schools and colleges with student participants, and one such study focused on the emotional competence and adjustment of teacher education candidates (Balasubramanian & Saratha, 2024). Further research is needed to establish a link between sports participation and the academic success of individuals aspiring to become teachers. Given that college students constitute a distinct demographic preparing to teach and encourage physical activity and extracurricular involvement, this makes the present study particularly relevant.

Despite the well-established benefits of playing sports, it remains unclear how age and gender affect the association between involvement and academic achievement in this setting. Many teacher trainees believe that participating in sports will negatively affect their academic performance. Consequently, college students often misjudge their involvement in extracurricular activities.

The study aims to: (1) ascertain whether sports participation is linked to academic performance among teacher trainees in Western Kenya; (2) investigate whether age moderates the relationship between sports participation and academic achievement; and

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(3) determine whether gender differences exist in the academic achievement of college students who participate in sports and those who do not.

LITERATURE REVIEW

Bioecological theory has been used by several studies to study involvement in sports (Cooky *et al.*, 2016; Ringley, 2017) as well as separate academic achievement-related subjects such learning settings, surrounds, and the sense of belonging (Zaatari Maalouf, 2022; Ruiz *et al.*, 2018), special educational needs and support provisions (Lundqvist, 2016). These findings highlight the significance of bioecological theory in providing a thorough and ecological explanation of the interactions between various signals in sports participation and academic achievement.

Numerous studies' findings have demonstrated a beneficial correlation between participation in sports and academic achievement, highlighting the need for more research in this field. For example, a study by Udoh (2024) found that participating in school sports improves academic performance and cognitive function. Liu and Taresh's (2024) mixed-methods study, conducted across several college campuses, supports this viewpoint. Chen *et al.* (2021) also found a dose-dependent relationship: students who participated in more sports generally had higher academic scores across all demographic categories. While Barrall *et al.* (2025) contend that college sports participation can enhance social belonging, which is also linked to improved academic motivation, Matian *et al.* (2023) also found that students or trainees who participated in other recreational sporting activities and group exercise maintained better GPAs in comparison to their non-participating counterparts at middle-level colleges. Similarly, self-control was found to mediate the relationship between college students' academic achievement and physical activity (Zhang *et al.*, 2025). These studies clearly indicate a consistent and beneficial correlation when viewed in a broad context.

Although the results are also conflicting, gender and age inequalities in the sport-academic association have attracted significant attention. According to research by Shoval *et al.* (2021), female students often do better academically than male students in competitive sport environments, particularly when self-efficacy and sport activity are linked. Although the influence is not statistically substantiated at the significance levels, this trend and pattern have been observed repeatedly in larger college groups. Even though a large portion of this component in the recent empirical literature remains understudied, older learners seem to engage with academic and sport interests and demands differently than younger age groups (Ishihara *et al.*, 2020).

There are significant disclaimers notwithstanding the generally positive viewpoint. Papisideris *et al.* (2021) found a negligible, in some cases negative, correlation between academic performance and physical activity; this suggests that the benefits of sports involvement

may vary depending on the situation rather than being universal. Furthermore, Yukhymenko-Lescroart *et al.* (2024) and Fraile-Martínez *et al.* (2024) caution that the majority of current research relies on observational designs and self-reported data, which are either biased or may not demonstrate causation. Additionally, many earlier studies in the literature focused only on university-level participants, limiting their applicability to a wide range of student groups, especially at middle-level institutions, according to Raabe *et al.* (2022).

However, little research has examined the link between sport involvement and academic success while accounting for age and gender, particularly at the diploma college level. While socio-cultural factors unique to diploma programs in sub-Saharan African contexts are still relatively understudied in the literature, a significant portion of the literature has focused on secondary schools or universities (Ramer *et al.*, 2023; Vasold *et al.*, 2021). In particular, teacher training colleges offer an entirely different environment; college students are adults, usually older than undergraduate students in universities or secondary schools, and they are preparing to become teachers who will be in charge of encouraging extracurricular activities on their own when they graduate from college. Thus, by focusing on this demographic in Western Kenya and investigating how age or gender influences the relationship between sport participation and academic achievement, our study fills a significant gap.

MATERIALS AND METHODS

A cross-sectional research approach was used in this study, which included 2,450 teacher trainees from three public teacher training institutions in Kenya's western region. A multi-stage sampling procedure was used to select a sample of 343 trainees: simple random sampling to select individual trainees, stratified sampling to select teacher training categories, and purposive sampling to select colleges. A self-made, in-person sports-related activity questionnaire was used to gather the data. For reliability, a pilot test with forty trainees yielded a Cronbach's alpha of 0.73. Knowledgeable research fellows and lecturers in sports and physical education evaluated the validity. Frequencies were assessed using the Chi-square test of independence at $\alpha = 0.05$ to organize and present the data in tables.

RESULTS AND DISCUSSION

Statistical analyses were performed using SPSS (Statistical Package for the Social Sciences) version 27. To investigate the relationships between academic performance and categorical variables such as sports activity (Yes/No), age group, and gender (male or female), chi-square tests were employed.

Table 1 compares students who played sports ($n = 298$) with those who did not ($n = 45$) and shows the distribution of students by age group and academic ability. The 19–22 age group comprised the majority of

participants and non-participants. Additionally, this age group had the most significant percentage of students receiving distinction ratings.

According to the results of the Chi-square test of association, there was a significant correlation between academic achievement and age group among athletes

Table 1: Cross-tabulation of Age, Sport Participation, and Academic Performance (n = 343)

Age Group	Credit (n, %)	Distinction (n, %)	Pass (n, %)	Total (n, %)
Participants				
Above 30	16 (9.6)	3 (2.5)	1 (7.7)	20 (6.7)
27–30	28 (16.9)	7 (5.9)	0 (0.0)	35 (11.7)
23–26	45 (27.1)	30 (25.2)	4 (30.8)	79 (26.5)
19–22	77 (46.4)	73 (61.3)	8 (61.5)	158 (53.0)
≤18	0 (0.0)	6 (5.0)	0 (0.0)	6 (2.0)
Total	166 (100.0)	119 (100.0)	13 (100.0)	298 (100.0)
Non-Participants				
Above 30	3 (12.5)	0 (0.0)	0 (0.0)	3 (6.7)
27–30	1 (4.2)	2 (10.5)	0 (0.0)	3 (6.7)
23–26	4 (16.7)	1 (5.3)	1 (50.0)	6 (13.3)
19–22	16 (66.7)	16 (84.2)	1 (50.0)	33 (73.3)
Total	24 (100.0)	19 (100.0)	2 (100.0)	45 (100.0)

($\chi^2 = 26.293$, $df = 8$, $p = .001$). This means that college students who play sports and are between 19 and 22 are more likely to earn higher grades in their academic work. The lack of statistical significance in the relationship between age and achievement among non-participants ($\chi^2 = 7.153$, $df = 6$, $p = .307$) indicates that there were no apparent age-based differences in academic ability in this group. Overall, there was a statistically significant

correlation between playing sports and academic success among all 343 students ($\chi^2 = 27.807$, $df = 8$, $p < .001$), suggesting that participation in sports is strongly linked to academic success across the board.

Table 3 shows that 114 (38.3%) of the respondents who participated in sports were male, and the remaining 183 (61.4%) were female. Additionally, female trainees

Table 2: Chi-Square Tests of Age, Sport Participation, and Academic Performance (n = 343)

Sport Participation	χ^2	df	p-value	N
Yes	26.293	8	.001	298
No	7.153	6	.307	45
Total	27.807	8	.001	343

outperform their male counterparts. For example, 81 (68.1%) of the female participants received a distinction grade, whereas 38 (31.9%) of the male participants did.

Table 4 shows that there was no statistically significant correlation between academic success and gender among participants ($\chi^2 = 4.401$, $df = 4$, $p = .354$). Additionally, the

Table 3: Cross-tabulation of Gender, Sport Participation, and Academic Performance

Sport Participation	Gender	Credit	Distinction	Pass	Total
Yes (N = 298)	Male	71 (42.8%)	38 (31.9%)	5 (38.5%)	114 (38.3%)
	Female	94 (56.6%)	81 (68.1%)	8 (61.5%)	183 (61.4%)
No (N = 45)	Male	5 (20.8%)	8 (42.1%)	1 (50.0%)	14 (31.1%)
	Female	19 (79.2%)	11 (57.9%)	1 (50.0%)	31 (68.9%)

association was not significant among non-participants ($\chi^2 = 2.587$, $df = 2$, $p = .274$). The fact that both p-values are greater than 0.05 indicates that there is no appreciable difference in academic performance between male and female students. Therefore, gender does not appear to be a major predictor of academic success in our sample, even though more female trainees received distinction marks.

These results show that younger trainees (ages 19-22) often perform better academically among participants, whereas age has no discernible impact on non-participants. Overall, sports involvement was significantly associated with academic performance. When considered alone, gender differences in accomplishment were not statistically significant, even though females had a higher rate of distinctions.

Table 4: Chi-Square Tests on Gender, Sport Participation, and Academic Performance

Sport Participation	χ^2	df	p-value	N
Yes	4.401	4	.354	298
No	2.587	2	.274	45
Total	2.465	4	.651	343

Discussion

The results of our study showed that there are statistically significant differences between trainees who participate in sports in terms of both academic success and participant age when looking at the entire sample. Students aged 19 to 22 often do better. Participants and non-participants did not differ significantly in terms of gender or academic performance. Although the cross-sectional methodology limits drawing inferences about causality, the current study also showed that these results are consistent with the idea that participation in sports may boost positive self-efficacy and maintain academic motivation among younger trainees. The results indicate that female students outperform male students, although the difference was not statistically significant. From the students and the school’s perspectives, as well as from the perspective of educational policy, the current findings help clarify the status of student participants in the educational system in Western Kenya.

The findings of Chen *et al.* (2021), who discovered comparable patterns, are corroborated by this one. Additionally, Linker *et al.* (2022) noted that adolescent athletes showed exceptional physical health, which is crucial for academic achievement. The results also align with those of Shoal *et al.* (2021), who found that female athletes perform better academically than male athletes. This discrepancy suggests that targeted support is needed to encourage male involvement, which may offset the positive effects of sports on academic performance. Additionally, whereas individual sports emphasize integrated functions that appear to be prevalent in academic accomplishment, participation in sports allows for more intensive development of social skills that can help academic achievement (Mukamabano & Mugiraneza, 2024). For male students, this is especially important, as sports can teach them leadership and collaboration.

According to Thompson *et al.* (2022), institutional flexibility in scheduling is necessary to balance sports and academics effectively; the current institutional setting calls for further research in this area. Successful participation in sports and academic performance also depend on collaboration between sport programs, instructors, and coaches (Kristiansen, 2018; Yeung, 2015), as well as consultation with participants about lifestyle management (Yukhymenko–Lescroart, 2024). The results of our study suggest that, because male students are more sensitive to academic achievement than female students, special attention should be given to them when regulating the status of student participants in this region’s educational system.

Participation in sports is important for understanding the relationship between academic success and sports engagement, particularly for females who engage in sports and improve their academic performance. It is also possible to interpret the observed trend toward a stronger association between higher-level sports participation and academic success as reflecting a more rigorous and organized physical exercise regimen.

This study has several limitations that should be noted. Despite the cross-sectional design of this study, more robust research, such as a randomized controlled trial, is required to examine the causal association between academic achievement and sports engagement, as well as the mediating effects of age and gender. Conversely, individuals who were already performing well academically might have chosen to participate in sports. Follow-up studies that tracked the same trainees over time might be more enlightening. The frequency of each trainee’s participation in sports was also not recorded in the current study. Some trainees might have participated once a week, while others would have done so daily. That difference is significant, yet it was not taken into consideration in this study. Lastly, a three-college region is a modest base. The results might not apply to all of Western Kenya.

CONCLUSION

Our study’s findings, obtained using the Chi-square test, showed that students’ academic performance improves with their involvement in extracurricular activities. According to the statistics, trainees in the 19–22 age range who participated in sports had proportionately greater distinction rates than those in the older age range. Several inferences on the relationship between students’ academic performance in Western Kenyan colleges and their involvement in extracurricular activities were drawn from the studies outlined above. Given their proven link to better academic achievement, especially for younger trainees, teacher training colleges in Western Kenya ought to establish and fund extracurricular sports programs. The majority of colleges already have policy frameworks in place to encourage organized extracurricular activities alongside academic programs.

Furthermore, although involvement in extracurricular activities has a beneficial impact on academic performance, it is not a must for academic success. There is no discernible gender difference between students who engage in extracurricular activities and those who do not. Three practical suggestions are drawn from these results. First, college officials ought to fund organized, time-appropriate sports activities that do not interfere

with regular class time, especially for students in the 19–22 age range, who exhibit the highest correlation between involvement and academic success. Second, as male trainees make up just 38.3% of participants in this sample, targeted outreach should be used to actively promote male student participation in sports. Third, future regulations should recognize that involvement in extracurricular activities enhances academic performance rather than undermines it. Future research should use other designs, such as a longitudinal approach, and also collect data on the frequency and duration of sports engagement. Broader sampling across regions in Kenya would also strengthen generalizability.

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