

Sustainable Sports Development and Physical Activity Promotion in Higher Education Institutions

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Abstract

Higher education institutions occupy a unique position in the promotion of an active and healthy society, since they shape the habits of young adults at a formative stage of life and command the facilities and expertise needed to support sport. This paper examines the status of sustainable sports development and the promotion of physical activity in higher education institutions, drawing on evidence from selected universities and colleges in the north coastal districts of Andhra Pradesh. A descriptive survey design was adopted and primary data were gathered from two hundred and fifty respondents, comprising two hundred students and fifty members of physical education and administrative staff. A structured questionnaire built around a five-point Likert scale captured the condition of sports infrastructure and sustainable practices on the one hand and the effectiveness of institutional efforts to promote physical activity on the other. Percentage analysis, mean, standard deviation and the chi-square test were used to analyse the data. The findings indicate that sports infrastructure in the institutions studied is moderate but unevenly distributed, that the social dimension of sustainability is better developed than the environmental and financial dimensions, and that participation in regular physical activity among students remains lower than is desirable. Institutional initiatives such as intramural competitions, structured timetabling of sport and active encouragement by staff were found to raise participation significantly. Limited and ageing facilities, inadequate funding and the competing pressure of academic work emerged as the principal obstacles. The study concludes that a deliberate, well-resourced and sustainability-oriented approach is required if higher education institutions are to fulfil their potential as engines of lifelong physical activity.

Keywords: Sustainable sports development, physical activity promotion, higher education institutions, sports infrastructure, student participation, Andhra Pradesh.

1. Introduction

Physical activity is one of the most reliable foundations of good health, yet across the world levels of activity have been falling even as the evidence of its benefits has grown. The decline is especially marked among young adults, many of whom move from the relatively active routines of school into the more sedentary patterns of college and university life. Higher

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education therefore arrives at a decisive moment in the life course, when habits formed may persist for decades. For this reason the role of higher education institutions in encouraging physical activity is a matter of considerable public importance.

Higher education institutions are unusually well placed to take up this role. They bring together large numbers of young people in a single setting, they employ qualified physical education staff, and they typically possess grounds, courts and gymnasias that few other community organisations can match. Through curricular and extracurricular sport, through competitions and clubs, and through the everyday example of an active campus culture, these institutions can influence the behaviour of an entire generation. The question is not whether they have the capacity to promote physical activity, but how effectively and how sustainably they do so.

The idea of sustainability adds an important dimension to this discussion. Sustainable sports development means more than simply providing facilities; it means providing them in a way that can be maintained over time, that uses resources responsibly, that is financially viable, and that is socially inclusive so that all students, regardless of ability or background, can take part. Sustainability in this broad sense draws on environmental, economic, social and institutional considerations, and a programme that neglects any one of these dimensions is unlikely to endure. The global commitment to sustainable development has made this perspective increasingly relevant to every sector, including sport and education.

In India, the importance of sport and physical activity in education has received growing official recognition. National policy has emphasised the integration of sport into the educational experience and the development of sporting talent from the grassroots upward, and universities are expected to play their part in this effort. At the same time, many institutions continue to struggle with limited budgets, ageing facilities and the perennial difficulty of persuading students to make time for physical activity amid the demands of study. Understanding how these competing pressures play out in practice is essential if policy aspirations are to be translated into real change.

The north coastal districts of Andhra Pradesh provide a representative setting for such an enquiry. The region contains a mix of universities, government colleges and private or autonomous colleges, serving a large and diverse student population. Examining how these institutions develop sport sustainably and promote physical activity offers insight not only into

the local situation but also into the wider challenges faced by higher education across much of the country.

Against this background, the present study sets out to examine the status of sustainable sports development in higher education institutions in the region and to assess the effectiveness of their efforts to promote physical activity among students. In doing so it aims to provide evidence that can guide institutions, administrators and policymakers in strengthening the contribution of higher education to an active and healthy society.

2. Review of Literature

The health consequences of physical inactivity have been documented in a large body of research. Pate and colleagues (1995) made an early and influential case for physical activity as a public health priority, recommending regular moderate activity for adults. The scale of the problem was later underlined by Kohl and colleagues (2012), who described physical inactivity as a global pandemic requiring coordinated action across sectors. More recently, the World Health Organization (2020), in guidelines synthesised by Bull and colleagues (2020), reaffirmed the importance of regular activity across all age groups and warned of the harms of sedentary behaviour.

The particular vulnerability of the college years has attracted dedicated attention. Keating and colleagues (2005) conducted a meta-analysis of the physical activity behaviours of college students and found that a substantial proportion failed to meet recommended levels, identifying the transition to higher education as a period of heightened risk for the adoption of sedentary habits. This finding has been echoed in many later studies and has motivated interest in the campus as a site for intervention.

The benefits of participation extend well beyond physical health. Eime and colleagues (2013) systematically reviewed the psychological and social benefits of sport participation and reported gains in mental wellbeing, social connection and self-esteem, providing a strong rationale for institutions to invest in sport for reasons that touch the whole person. Sallis and colleagues (2016), reviewing global progress on physical activity, stressed the role of supportive environments and policies in enabling people to be active, a conclusion of direct relevance to the design of campus programmes.

The concept of sustainability in sport has developed along a separate but converging path. Lindsey (2008) offered an early conceptualisation of sustainability in sports development,

10.48047/jocaaa.2024.32.1.92

distinguishing between the maintenance of individual programmes, organisations and broader community capacity, and arguing that sustainability must be planned for rather than assumed. Mallen, Stevens and Adams (2011) analysed the treatment of environmental sustainability in the sport-management literature and found it to be an emerging but under-developed area, while Trail and McCullough (2020) examined how sustainability can be communicated and promoted through sport, highlighting the influence that sporting organisations can exert on attitudes and behaviour.

These streams of research connect with the wider international agenda. The United Nations (2015), through the Sustainable Development Goals, placed health, education and responsible resource use at the centre of global policy, and the World Health Organization (2018) set out a global action plan for physical activity that explicitly calls on educational institutions to create active environments. Together these frameworks position higher education as an important contributor to both health and sustainability objectives.

In summary, the literature establishes that physical inactivity is a serious and growing problem, that the college years are a critical window for intervention, that sport delivers wide-ranging benefits, and that sustainability must be deliberately built into sports development if it is to last. What remains comparatively under-explored is how these principles are realised within higher education institutions in regional Indian settings, and it is to this question that the present study turns.

3. Significance of the Study

This study is significant on several counts. It examines sustainable sports development and physical activity promotion together, rather than in isolation, recognising that the two are closely linked: activity cannot be promoted for long without facilities and programmes that are sustainable. It draws evidence from a regional setting that is seldom studied, thereby broadening an evidence base dominated by elite and metropolitan institutions. It gives voice to both students and staff, capturing the experience of those who use the facilities as well as those who manage them. Finally, its findings carry direct practical value for university administrators, physical education departments and policymakers seeking to strengthen the contribution of higher education to an active and healthy society. In these ways the study addresses a question of growing public importance with evidence drawn from real institutions.

4. Objectives of the Study

The study is built around the following two objectives:

1. To examine the status of sustainable sports development practices and infrastructure in higher education institutions in the north coastal districts of Andhra Pradesh.
2. To assess the effectiveness of institutional initiatives in promoting physical activity among students in these higher education institutions.

5. Hypotheses of the Study

In support of these objectives, the following null hypotheses were formulated and tested:

H1: There is no significant association between the type of institution and the level of sustainable sports development practices.

H2: There is no significant difference in the physical activity participation of students between institutions with strong promotion initiatives and those with weak promotion initiatives.

6. Research Methodology

6.1 Research Design

The study adopted a descriptive survey design, which is well suited to documenting the existing condition of facilities, practices and behaviour within a defined population. Since the purpose was to describe the status of sports development and to assess the effectiveness of promotion efforts rather than to manipulate variables experimentally, the survey method was the most appropriate choice.

6.2 Study Area

The study was conducted in the north coastal districts of Andhra Pradesh, a region served by a range of higher education institutions including universities, government colleges and private or autonomous colleges. This variety of institutions, together with a large and socially diverse student population, made the region a suitable setting for examining sustainable sports development and physical activity promotion.

6.3 Population and Sample

The population comprised students and physical education and administrative staff in higher education institutions in the study area. A sample of two hundred and fifty respondents was selected, consisting of two hundred students and fifty members of staff. The respondents

were drawn from institutions of different types so that the sample reflected the structure of higher education in the region.

6.4 Sampling Technique

A stratified random sampling technique was used. Institutions were first grouped by type, and respondents were then selected from each group so that universities, government colleges and private or autonomous colleges were all adequately represented. Students were sampled across disciplines and years of study to capture a broad range of experience.

6.5 Tools for Data Collection

Primary data were collected through a structured questionnaire developed by the researcher after a review of the relevant literature. The questionnaire comprised three sections: the first recorded the demographic profile of the respondent, the second assessed the status of sports infrastructure and sustainable practices, and the third measured the effectiveness of physical activity promotion through statements rated on a five-point Likert scale. The instrument was reviewed by subject experts to establish content validity and was pilot tested for clarity and consistency before full administration.

6.6 Statistical Techniques

The data were tabulated and analysed using percentage analysis to describe the status of facilities and participation, mean and standard deviation to summarise effectiveness, and the chi-square test to examine associations and differences in line with the stated hypotheses. A significance level of five per cent was adopted throughout.

7. Results and Discussion

7.1 Demographic Profile of Respondents

Table 1 presents the demographic profile of the respondents, which spanned different types of institution and a balanced representation of students and staff.

Table 1
Demographic Profile of the Respondents (N = 250)

Variable	Category	No. (%)
Respondent type	Students	200 (80.0)
	Staff	50 (20.0)
Gender	Male	141 (56.4)
	Female	109 (43.6)

Variable	Category	No. (%)
Institution type	University	84 (33.6)
	Government college	96 (38.4)
	Private / autonomous college	70 (28.0)

The sample drew fairly evenly from the three types of institution, with students forming the large majority of respondents, as is appropriate for a study primarily concerned with student participation. This balance allowed comparisons to be made between institution types while keeping the student experience at the centre of the analysis.

7.2 Status of Sports Infrastructure and Sustainable Practices (Objective 1)

The first objective concerned the status of sports development. Respondents rated the adequacy of various components of provision. Table 2 reports the proportion describing each component as adequate, moderate or inadequate.

Table 2
Perceived Adequacy of Sports Infrastructure and Practices (%)

Component	Adequate	Moderate	Inadequate
Playing fields and courts	38.0	41.2	20.8
Indoor / gymnasium facilities	27.6	39.2	33.2
Equipment availability	31.2	44.0	24.8
Maintenance and upkeep	24.4	40.8	34.8
Qualified physical education staff	46.8	34.0	19.2
Inclusive access for all students	40.4	38.8	20.8

The pattern that emerges is one of moderate and uneven provision. Outdoor playing fields and qualified staff were viewed most favourably, while indoor facilities and, in particular, maintenance and upkeep were the areas of greatest concern. The relatively high proportion describing maintenance as inadequate is significant from a sustainability standpoint, since facilities that are not properly maintained deteriorate quickly and represent a poor use of the resources invested in them. This finding points to a gap between the creation of facilities and their long-term care, which is precisely the gap that a sustainable approach seeks to close.

To examine sustainability more directly, respondents rated four dimensions of sustainable sports development. The mean scores, on a five-point scale, are reported in Table 3.

Table 3

Mean Scores on Dimensions of Sustainable Sports Development

Dimension of Sustainability	Mean	SD
Social (inclusion and participation)	3.62	0.74
Institutional (policy and planning)	3.28	0.81
Economic (funding and viability)	2.91	0.88
Environmental (resource-responsible facilities)	2.74	0.92

The social dimension scored highest, indicating that institutions are reasonably successful at including students and encouraging participation. The economic and environmental dimensions scored lowest, reflecting the familiar pressures of limited funding and the as yet limited attention given to environmentally responsible facilities. This profile suggests that, while the human and social foundations of sustainable sport are in place, the financial and environmental foundations need strengthening if development is to be durable.

7.3 Physical Activity Participation among Students

Attention then turned to the behaviour the institutions are seeking to influence, namely the physical activity of students. Table 4 reports the self-described participation levels of the student respondents.

Table 4

Level of Physical Activity Participation among Students (n = 200)

Participation Level	No.	%
Regular (most days of the week)	58	29.0
Occasional (once or twice a week)	74	37.0
Rare (less than weekly)	46	23.0
None	22	11.0
Total	200	100.0

Only a little under a third of students reported regular physical activity, while a third more were active only occasionally and around a third were active rarely or not at all. These figures are consistent with the international evidence on declining activity among young adults and confirm that, despite the presence of facilities, a large share of students are not sufficiently active. The gap between the availability of facilities and their actual use is one of the central challenges that promotion efforts must address.

7.4 Effectiveness of Promotion Initiatives (Objective 2)

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The second objective concerned the effectiveness of institutional efforts to promote physical activity. Respondents rated a series of initiatives on a five-point scale. Table 5 reports the results.

Table 5
Perceived Effectiveness of Physical Activity Promotion Initiatives

Initiative	Mean	SD
Intramural and inter-class competitions	4.02	0.71
Dedicated sports period in the timetable	3.88	0.79
Encouragement by physical education staff	3.81	0.76
Sports clubs and student-led activity	3.67	0.83
Awareness drives on health and fitness	3.44	0.88
Incentives such as credit or recognition	3.21	0.94

Competitions, a timetabled sports period and direct encouragement by staff were rated most effective, indicating that structured, regular opportunities and personal encouragement do more to raise participation than general awareness campaigns. The lower scores for awareness drives and formal incentives suggest that information alone has limited effect and that recognition schemes are not yet well developed. The clear message is that participation responds best to opportunities that are built into the rhythm of campus life rather than to occasional or purely promotional activity.

7.5 Testing of Hypotheses

The first null hypothesis stated that there is no significant association between the type of institution and the level of sustainable sports development. The second stated that there is no significant difference in student participation between institutions with strong and weak promotion initiatives. Both were tested using the chi-square test, with the results shown in Table 6.

Table 6
Chi-Square Results for the Stated Hypotheses

Relationship Tested	χ^2	df	p	Result
Institution type $\times$ sustainable development level	16.92	4	0.002	Rejected
Promotion strength $\times$ student participation	23.58	3	0.000	Rejected

Both null hypotheses were rejected at the five per cent level. The type of institution was significantly associated with the level of sustainable sports development, with universities

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generally showing stronger development than colleges, reflecting their larger facilities and resources. More importantly, the strength of an institution's promotion initiatives was significantly associated with student participation: institutions that actively promoted physical activity recorded markedly higher participation than those that did not. This result provides direct support for the central premise of the study, namely that deliberate institutional effort makes a measurable difference to how active students are.

7.6 Barriers to Sustainable Sports Development

Respondents were asked to identify the principal barriers to sustainable sports development and physical activity promotion. Their responses are summarised in Table 7.

Table 7
Perceived Barriers (multiple responses)

Barrier	Responses	%
Inadequate funding for sport	181	72.4
Limited or ageing facilities	166	66.4
Academic pressure and lack of time	158	63.2
Weak maintenance systems	124	49.6
Low awareness of health benefits	97	38.8

Inadequate funding and limited or ageing facilities were the most frequently cited barriers, closely followed by the competing pressure of academic work, which keeps many willing students away from sport. These obstacles are interconnected: limited funding leads to ageing facilities and weak maintenance, while a campus culture that does not protect time for activity allows academic demands to crowd it out. Addressing them therefore requires action on several fronts at once, combining investment, better maintenance and a timetable and culture that treat physical activity as a valued part of education rather than an optional extra.

8. Major Findings

1. Sports infrastructure in the institutions studied is moderate and unevenly distributed, with outdoor facilities and qualified staff rated more favourably than indoor facilities and maintenance.
2. Among the dimensions of sustainability, the social dimension is the strongest, while the economic and environmental dimensions are the weakest.
3. Only about a third of students are regularly physically active, while a comparable share are rarely active or inactive.

10.48047/jocaaa.2024.32.1.92

4. Structured opportunities such as competitions and a timetabled sports period, together with personal encouragement by staff, are the most effective promotion initiatives.
5. The type of institution is significantly associated with the level of sustainable development, and the strength of promotion initiatives is significantly associated with student participation.
6. Inadequate funding, limited or ageing facilities and academic pressure are the leading barriers to sustainable sports development and physical activity promotion.

9. Conclusion

This study set out to examine the status of sustainable sports development and to assess the effectiveness of physical activity promotion in higher education institutions in the north coastal districts of Andhra Pradesh. The evidence shows that these institutions have a reasonable social and human foundation for sport, with inclusive participation and qualified staff, but that the financial and environmental foundations of sustainability remain weak, and that a large proportion of students are not sufficiently active. Crucially, the study demonstrates that institutional effort matters: where physical activity is actively and structurally promoted, participation is significantly higher. Promotion is therefore not a peripheral activity but a decisive influence on student behaviour.

The broader implication is that higher education institutions can fulfil their potential as engines of lifelong physical activity only through a deliberate, well-resourced and sustainability-minded approach. This means not merely building facilities but maintaining them, not merely funding sport once but funding it durably, and not merely permitting activity but actively weaving it into the daily life of the campus. With such an approach, and with the policy support that increasingly favours it, higher education in the region can make a lasting contribution to the health and wellbeing of its students and, through them, to society at large.

10. Limitations and Suggestions for Future Research

The study has limitations that should be acknowledged. It relied on self-reported perceptions of facilities and behaviour rather than on objective audit or measurement, and it was confined to one region, so the findings should be read as indicative of the regional situation rather than as definitive for the country as a whole. Future research could combine survey evidence with objective facility audits and measured activity levels, compare several regions to test how far the findings generalise, and follow students over time to examine whether active

10.48047/jocaaa.2024.32.1.92

habits formed at college persist into later life. Research of this kind would deepen understanding of how higher education can most effectively and most sustainably promote physical activity.

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