

# Understanding Student Engagement in Campus Recreation: A Theory-Based Investigation Using the Health Belief Model

*Soojin Kim<sup>1</sup>, Yongjae Kim<sup>2</sup>, SungEun Min<sup>3</sup>.*

<sup>1,2</sup>Department of Sport Management, Kutztown University, United States

<sup>3</sup> Department of Elementary, Middle, Library & Technologies Education, Kutztown University, United States

## Abstract

Campus recreation plays a critical role in promoting student health, well-being, and campus engagement, with expanding implications for recruitment, retention, and institutional reputation. Despite broad recognition of its value, empirical research assessing the effectiveness and impact of collegiate recreation services remains limited. This study addresses that gap by applying the Health Belief Model (HBM) and SERVQUAL framework to evaluate student engagement with campus recreation at a large public university. Using survey data, the study explores how students' health beliefs, demographic characteristics, and perceptions of service quality influence participation, satisfaction, and perceived benefits. Results indicate that students who prioritize health and fitness are significantly more likely to utilize recreational services, particularly those residing on campus and in earlier academic years. Barriers such as lack of time and off-campus living were identified as key constraints, while perceived benefits included stress reduction, improved fitness, and enhanced self-confidence. SERVQUAL analysis revealed that facility cleanliness, staff competence, and safety were the strongest predictors of satisfaction, while limited equipment availability and overcrowding were noted areas for improvement. These insights highlight the necessity of targeted interventions and inclusive programming, reinforcing campus recreation's strategic role in advancing student development and supporting institutional success.

**Keywords:** Campus Recreation, Student Engagement, Health Belief Model (HBM), SERVQUAL

Soojin Kim, Ph.D., and Yongjae Kim, Ph.D., are affiliated with the Department of Sport Management at Kutztown University of Pennsylvania, Kutztown, PA, USA. Dr. Kim's research includes strategic marketing, sport communication, and consumer behavior, while Dr. Kim focuses on sport fan behavior, brand management, and strategic marketing.

## 1. Introduction

---

Campus recreation programs are fundamental to fostering holistic student development, contributing significantly to students' physical health (Lindsey, 2012), psychological well-being (Montgomery, 2016), social integration (D'Alonzo et al., 2004), and overall college satisfaction. Over the past three decades, the role of collegiate recreational services has been increasingly recognized in various domains, including student recruitment and retention (Belch et al., 2001; Forrester et al., 2018; Miller & Croft, 2022), health and wellness outcomes (Dalgarn, 2001; Suttium & Chang, 2016), and co-curricular learning (Haines & Fortman, 2008; Roddy et al., 2017). Notably, students who engage more frequently in campus recreation report higher levels of happiness, stronger place attachment, and a greater sense of belonging—factors closely associated with academic success and persistence (Belch et al., 2001; Roddy et al., 2017; Simpson, 2020).

Moreover, campus recreation is not only essential for current student wellness but also serves as a strategic asset in institutional marketing and enrollment management. Previous research highlighted the influence of recreational facilities on prospective students' enrollment decisions, noting that opportunities for intramural and recreational sports were considered more important than elite athletic programs by many applicants (Hensel, 2000; Kampf & Teske, 2013; Miller, 2018; Miller & Croft, 2022). This trend underscores the competitive significance of recreational services in attracting and retaining students within a crowded higher education marketplace.

Despite the well-documented advantages, much of the current discourse on campus recreation

remains grounded in anecdotal or practice-based accounts, with limited empirical evidence evaluating service quality, usage patterns, and student satisfaction in a comprehensive manner. Miller (2011) emphasized the need for robust, theory-driven research to assess how students perceive the value of campus recreation, particularly in relation to measurable health, social, and academic outcomes.

To address this gap, the present study aims to develop and validate a theory-based framework for understanding student engagement in campus recreation, guided by the Health Belief Model (HBM) and the SERVQUAL framework. Drawing on prior literature, the study is designed to address the following research questions:

RQ1: How does perceived importance of health and fitness influence the use of campus recreational services?

RQ2: How do demographic variables (e.g., residency status, class standing, gender) influence recreational service usage?

RQ3: What are the perceived benefits of recreational service participation, and how do these differ between users and non-users?

RQ4: What are the primary constraints that inhibit student participation in recreational programs?

Specifically, the purpose of this study is threefold: a) to examine how students' health beliefs and perceived benefits influence their engagement with campus recreational services; b) to analyze differences in usage patterns, perceived constraints, and service quality evaluations across demographic subgroups, including participant type, gender, and residency status; and c) to assess the relationship between perceived service quality dimensions and overall satisfaction with the Student Recreation Center. By integrating health behavior theory with service quality assessment,

this research contributes to a growing body of literature aimed at documenting and enhancing the value of recreational sports in higher education.

## 2. Literature Review

### *Health Belief Model and Student Participation in Campus Recreation*

The Health Belief Model (HBM), developed by Rosenstock (1974), is a widely used theoretical framework for explaining health-related behaviors, particularly in public health and educational settings. The model posits that individuals' likelihood of engaging in health-promoting behaviors—such as physical activity, preventive care, or lifestyle changes—is influenced by six core constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. Perceived susceptibility and severity refer to individuals' beliefs about the likelihood and seriousness of experiencing a health condition. Among college students, for example, those who perceive themselves as vulnerable to health risks such as skin cancer or viral infections (e.g., COVID-19) are more likely to adopt protective or preventive behaviors (Odunsi & Farris, 2023; Pearlman et al., 2021). Perceived benefits and barriers involve students' assessments of the positive outcomes of engaging in health-related behaviors, such as vaccination or exercise, weighed against obstacles like time constraints, cost, or limited access (Catalano et al., 2024; Guo, 2024). Cues to Action represent external or internal triggers that motivate individuals to adopt a behavior. In university settings, these cues may include campus-wide health campaigns, informational materials, or peer influence that activate the decision-making process (Catalano et al., 2024). Self-Efficacy, defined as the confidence in one's ability to

perform a specific behavior, is another critical determinant of health action. Students who possess higher self-efficacy are more likely to consistently participate in preventive behaviors and sustain those actions over time (Pearlman et al., 2021).

Applied to campus recreation, the HBM suggests that students will be more likely to use recreational facilities when they recognize the health-related value of participation and when perceived barriers are low. Conversely, if they perceive limited relevance or face logistical obstacles such as lack of time or commuting distance, they may be less likely to engage. Furthermore, interventions that increase exposure to cues to action and foster self-efficacy can enhance recreational participation and support broader wellness goals (Kim et al., 2012). Based on the HBM framework and the preceding literature, the following hypotheses are proposed:

H1: Students who perceive physical activities and a healthy life style as important are more likely to use the KU Recreational Center regularly.

Students' perceived benefits from recreational participation, including improvements in physical health, stress relief, and self-confidence, are central to their engagement. According to HBM, greater recognition of these benefits should correlate with higher usage. This leads to the following hypothesis:

H2: Users of the recreational center report higher levels of perceived benefits than non-users.

HBM also identifies perceived barriers as critical inhibitors of health behavior. In the context of campus recreation, time constraints, scheduling conflicts, or off-campus residency may discourage participation despite recognition of potential benefits.

H3a: Perceived constraints negatively predict the frequency of recreational center usage.

H3b: Commuter students report significantly higher perceived constraints than on-campus students.

#### *Service Quality and Student Satisfaction*

The SERVQUAL model developed by Parasuraman et al. (1988) assesses perceived service quality through five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions influence satisfaction and repeat usage in consumer contexts and have been effectively applied to recreational services (Sheriff et al., 2022). Clean, well-equipped facilities with knowledgeable and friendly staff tend to receive higher satisfaction ratings (Osman et al., 2006).

H4: Perceived service quality will be positively associated with student satisfaction with campus recreation.

#### ***Collegiate Recreational Services and Student Development***

Collegiate recreational services play a vital role in the multidimensional development of students, extending well beyond physical activity to support a range of personal, social, and professional competencies. These services are increasingly recognized as central to the broader mission of higher education, contributing to students' holistic growth by fostering leadership, promoting civic responsibility, enhancing career readiness, and supporting physical and mental well-being.

Recreational programs support learning across multiple domains, including career development (Stromdahl, 2016), and leadership capacity (McFadden & Carr, 2015). Student employment within campus recreation, for instance, provides meaningful work experiences that cultivate essential career competencies such as

communication, collaboration, and problem-solving (Stromdahl, 2016). These opportunities offer experiential learning that prepares students for workplace expectations and reinforces the application of classroom knowledge to real-world contexts.

Moreover, leadership skills are developed through participation in recreation programs. Students employed in recreational facilities often take on supervisory and program coordination roles, requiring them to lead peer teams, manage conflict, and facilitate group activities (McFadden & Carr, 2015). These responsibilities nurture essential leadership attributes, including accountability, initiative, and strategic thinking.

In terms of holistic development, recreational services offer well-documented benefits to both physical and mental health. Participation in recreation also enhances social integration, as it facilitates the development of interpersonal relationships and broadens students' social networks. Through shared activities and team environments, students build friendships, strengthen communication skills, and gain exposure to diverse perspectives—all of which are critical to personal growth and social competence (Belch et al., 2001).

#### ***Collegiate Recreational Services and Student Retention***

The relationship between collegiate recreational services and student retention has garnered increasing attention in higher education research. A growing body of literature suggests that participation in campus recreation contributes not only to students' physical and mental well-being but also plays a strategic role in fostering academic persistence and institutional loyalty. Engagement in recreational activities has been shown to cultivate a sense of belonging and

enhance academic performance, both of which are critical predictors of student retention (Knepp, 2011; Miller & Croft, 2022). This connection has become particularly salient in the context of both pre- and post-COVID-19 environments, during which recreational services have served as vital touchpoints for maintaining student engagement amid uncertainty and disruption.

To capitalize on these benefits, universities are encouraged to implement retention-oriented strategies that leverage the role of recreation centers, particularly first-time, full-time students. As noted by Mixson-Brookshire et al. (2023), integrating recreation into first-year experience programs can create a supportive campus environment that encourages continued enrollment. Additionally, students consistently report a range of positive outcomes from recreational participation—including physical health improvements, stress relief, and new social connections—which enhance their overall college experience and sense of institutional fit (Henchy, 2011). To examine these relationships, the following hypothesis is proposed:

H5: The perceived influence of recreational services on enrollment decisions is higher among users than non-users.

### 3. Methodology

In the study, a cross-sectional survey design was employed to examine how students' health beliefs and perceptions of service quality influence their engagement with campus recreation services. Guided by the Health Belief Model (HBM) and the SERVQUAL framework, the study assessed psychological predictors of participation frequency, satisfaction, and intention to continue using the recreation center at a public university on the East Coast of the United States.

### *Participants and Data Collection*

Using a convenience sampling method, data were collected from 645 undergraduate and graduate students enrolled at a medium-sized East Coast university. Of these, 57.1% identified as female and 42.9% as male, with an average age of 19.84 years ( $SD = 5.86$ ). Participants represented various academic levels: 49.4% freshmen, 21.9% sophomores, 17.1% juniors, 11.0% seniors, and 0.5% graduate students. Regarding race and ethnicity, 76.3% identified as White/Caucasian, 13.1% as Black/African American, 6.3% as Hispanic, and 4.3% as Other. Housing status varied, with 66.1% living on campus, 24.2% commuting from off-campus, and 9.7% living off campus as non-commuters. Students were categorized as either users or non-users of the campus recreation center based on self-reported usage frequency.

Data was collected using intercept survey methods at high-traffic campus locations, including entrances to the recreation center, academic buildings, and students' common areas. Surveys were administered in paper format by trained student researchers. Participants were informed of the study's purpose and provided with written consent prior to participation. The survey took approximately 5 minutes to complete, and a university-branded merchandise as an incentive.

### *Instrumentation was offered to all participants.*

The survey instrument included four sections aligned with the study's key constructs: service quality, perceived recreational benefits, behavioral engagement, and demographic information. Items measuring perceived benefits (e.g., stress reduction, health improvement) and barriers (e.g., time constraints) were adapted from the NIRSA Quality and Importance of Recreation Services (QIRS) and the Scale of Service Quality



in Recreation Sports (SSQRS) developed by Ko and Pastore (2007). All items were rated on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). Perceived service quality was assessed using the SERVQUAL framework (Parasuraman et al., 1988), which includes five dimensions: tangibles (e.g., facility cleanliness and equipment condition), reliability, responsiveness, assurance, and empathy. Behavioral engagement was measured through self-reported frequency of recreation center visits, overall satisfaction, and intention to continue using the facility.

### **Data Analysis**

Quantitative data were analyzed using descriptive and inferential statistical techniques aligned with the study's research questions. Descriptive statistics—including means, standard deviations, and frequency distributions—were calculated to summarize participant demographics, usage patterns, service quality perceptions, and perceived benefits and barriers.

To examine differences between users and non-users of the Student Recreation Center (SRC), group comparisons were conducted. Percentages were used to compare the importance placed on recreation, wellness behaviors, and health-related benefits. Group means were compared for variables such as the perceived influence of the SRC on university enrollment decisions and satisfaction with facility attributes. Additionally, frequency data were analyzed to assess utilization patterns, including weekly visit frequency, average duration per visit, and preferred activities (e.g., cardio training, fitness assessments). Reported participation barriers—such as time constraints and scheduling conflicts—were examined by housing status (on-campus, commuter, and off-campus non-commuter) to

identify potential structural limitations.

To test the study's hypotheses, inferential statistical analyses were employed. For example, multiple regression analyses were conducted to examine H1 and H3a, evaluating the extent to which perceived constraints and health-related motivations predicted recreation center usage.

## **4. Results**

---

### ***Perceived Importance of Recreational Activities and a Healthy Lifestyle***

Regarding RQ1, the findings reveal a stark contrast between users and non-users of the Recreational Center in their perceived importance of recreation and health-related activities. Among users, 73.2% rated recreation, sports, and fitness activities as “important” or “very important,” compared to only 32.4% of non-users. A similar pattern emerged for perceptions of maintaining a healthy lifestyle: 85.7% of users considered it important or very important, while only 58.3% of non-users shared this view.

The results of a multiple regression analysis indicated that both participation in recreational sports ( $\beta = .41, p < .001$ ) and maintaining a healthy lifestyle ( $\beta = .41, p < .001$ ) are significant predictors of recreation center usage, supporting H1. The overall model was statistically significant,  $F(2, 642) = 18.65, p < .001$ , indicating that the combination of predictors reliably explained variance in recreation center usage. The model accounted for 14.5% of the variance in recreation center usage,  $R^2 = .145$ , *adjusted*  $R^2 = .137$ , suggesting a moderate effect size.

#### **Demographic Profile of Users vs. Non-Users**

The respondent pool was composed of 42.9% males and 57.1% females. Regarding RQ2, males were more likely to be users of the Recreational Center (45.1%) than non-users (34.4%), while a

larger proportion of females were non-users (65.0%). The average age of users ( $M = 19.41$ ,  $SD = 5.56$ ) was lower than that of non-users ( $M = 21.17$ ,  $SD = 6.58$ ), indicating that younger students, particularly freshmen (52.2% of users), are more likely to utilize the recreational center. Conversely, juniors comprised 24.3% of non-users, a potential indicator of decreased engagement with recreational services in later academic years.

The racial and ethnic composition was relatively consistent between users and non-users, although Hispanic students were slightly overrepresented among non-users (10.1%) compared to users (5.3%). Among users, 77.3% identified as White/Caucasian, 13.6% as Black/African-American, 5.3% as Hispanic, and 3.8% as Other. Among non-users, 73.2% identified as White/Caucasian, 10.1% as Black/African-American, 10.1% as Hispanic, and 6.6% as Other.

Residency appears to play a significant role in usage behavior. While 74.4% of users lived on campus (14.7% were off-campus commuters and 11.0% were off-campus non-commuters), the majority of non-users (56.5%) were off-campus commuters. This suggests that proximity and accessibility are significant predictors of recreational center utilization.

### *Perceived Benefits and Behavioral Drivers*

Regarding RQ3, users and non-users identified several key benefits associated with recreational service participation. Both groups agreed on the importance of well-being and overall health. However, users reported significantly higher recognition of benefits related to fitness level (52.6% vs. 22.0% for non-users), physical strength (56.7% vs. 24.0% for non-users), and stress management (58.7% vs. 38.0% for non-users), supporting H2 (see Table 1).

Table 1

Top Attributes Influencing Non-users' and Users' Participation in Recreation Facilities and Programs

Users		Non-Users	
Attributes	Percentage	Attributes	Percentage
1. Overall Health	71.2 %	1. Well-Being	69.0 %
2. Well Being	70.0 %	2. Overall Health	61.0 %
3. Stress Management	58.7 %	3. Self Confidence	57.0 %
4. Self Confidence	57.7 %	4. Weight Control	52.0 %
5. Weight Control	56.9 %	5. Stress Management	38.0 %
6. Physical Strength	56.7 %	6. Concentration	32.0 %
7. Fitness Level	52.6 %	7. Athletic Ability	29.0 %

These findings suggest that users perceive a broader and more profound set of benefits, particularly in physical and psychological domains. Interestingly, self-confidence and

weight control were consistently rated among the top five benefits for both users and non-users, suggesting some shared beliefs about the potential outcomes of participation—even among those

who do not currently engage.

### **Participation Constraints**

A multiple regression analysis was conducted to examine the relationship between perceived constraints and the frequency of recreation center usage (H3a). The hypothesis was supported. Personal schedule constraints had the strongest negative effect ( $\beta = -0.30, p < .001$ ), suggesting that students who report scheduling conflicts are significantly less likely to use the recreation center. Lack of interest ( $\beta = -0.16, p = .031$ ) and lack of time ( $\beta = -0.13, p = .047$ ) were also significant, though weaker, predictors. The overall model was statistically significant,  $F(3, 641) = 12.34, p < .001$ , indicating that perceived

constraints as a group significantly predicted recreation center usage. The model explained 14.5% of the variance in recreation center usage,  $R^2 = .145$ , suggesting a moderate effect size.

Across all residency categories, personal scheduling and lack of time were the most frequently cited barriers to participation. On-campus students cited “personal schedule” (60.9%) and “lack of time” (58.1%), whereas off-campus commuters faced even greater constraints (67.0% and 64.3%, respectively), supporting H3b. These findings suggest that time management and scheduling flexibility are key considerations in improving participation rates.

As shown in Table 2, three health and physical education constraints were identified (RQ4).

Table 2  
Health and Physical Education Constraints

On Campus		Off Campus: Commuter		Off Campus: Non-Commuter	
Personal Schedule	60.9 %	Personal Schedule	67.0 %	Personal Schedule	52.2 %
Lack of Time	58.1 %	Lack of Time	64.3 %	Lack of Time	52.2 %
Lack of Interest	14.6 %	Other	30.4 %	Other	25.5 %

### **Service Quality and Satisfaction**

Overall satisfaction with the KU Recreational Services was high, with a mean score of 4.1 out of 5 ( $SD = 0.64$ ). Detailed satisfaction metrics using a 7-point Likert scale showed highest satisfaction in the categories of a safe environment ( $M = 5.95, SD = 1.07$ ), appearance of the facility ( $M = 5.86, SD = 1.09$ ), and facility accessibility ( $M = 5.78, SD = 1.23$ ). On the other hand, users expressed the

most dissatisfaction with equipment availability ( $M = 5.04, SD = 1.54$ ) and recreation center space ( $M = 5.23, SD = 1.50$ ), identifying these as potential areas for improvement.

Service delivery metrics—such as staff friendliness ( $M = 5.77, SD = 1.22$ ), willingness to help ( $M = 5.73, SD = 1.21$ ), and staff trustworthiness ( $M = 5.71, SD = 1.20$ )—further underscore a generally positive perception of



personnel, reflecting effective service management and user interaction (see Table 3).

For H4, regression analysis demonstrated that perceived service quality was a strong predictor of

overall satisfaction ( $\beta = .57, p < .001$ ). Among SERVQUAL dimensions, tangibles ( $\beta = .35, p < .001$ ) and staff assurance ( $\beta = .28, p < .01$ ) were the strongest contributors.

Table 3

Overall Recreational Service Satisfaction

SERVQUAL Dimension	Mean	Standard Deviation
Overall Facility Cleanliness	5.75	1.09
Facility Accessibility	5.78	1.23
Equipment Availability	5.04	1.54
Condition of Equipment	5.66	1.15
Appearance of the Facilities	5.86	1.09
Recreation Center Space	5.23	1.50
Safe Environment	5.95	1.07
Hours of Operation	5.71	1.35
Ability to Provide the Promised Services	5.68	1.21
Timeliness in Responding to Request	5.45	1.26
Ability to Solve Problems	5.43	1.27
Staff Friendliness	5.77	1.22
Staff Knowledge	5.70	1.19
Staff Trustworthiness	5.71	1.20
Willingness to Help	5.73	1.21
Individual Attention	5.40	1.39

### *Influence of Recreation Center on Enrollment Decision*

The influence of the recreational center on students' decision to attend KU was generally low. Users gave a modest average score ( $M = 2.55, SD = 1.12$ ), while non-users rated it even lower ( $M = 1.44, SD = 0.83$ ) on a 5-point scale (1 = Not at all Influential; 5 = Very Influential). These results indicate that while the center is valued by users, it does not serve as a major factor in enrollment decisions. The results of regression analysis ( $\beta = .12, p = .061$ ) don't support H5.

### **5. Discussion**

This study examined student perceptions, usage patterns, and satisfaction with collegiate recreational services through the dual lens of the Health Belief Model (HBM) and the SERVQUAL framework. The findings provide robust empirical support for the proposed conceptual model, confirming the significant role of perceived health benefits, service quality, and structural accessibility in shaping student engagement with campus recreation.

Consistent with the HBM's central premise,

students who identified recreation and health as important were more likely to engage with the Student Recreation Center (SRC). The stark contrast between users and non-users in valuing physical activity and healthy lifestyles supports Hypotheses 1, support the notion that individuals who actively engage in recreational and fitness activities, and who prioritize health maintenance, are more likely to utilize campus recreation facilities (Rosenstock, 1974; Suttiun & Chang, 2016). These results mirror prior research indicating that health-conscious attitudes correlate strongly with regular recreational participation (Odunsi & Farris, 2023; Pearlman et al., 2021).

Regarding RQ 2, the results demonstrating that residency status, age, and gender significantly affect recreational service usage. Students residing on campus were far more likely to utilize recreational services than commuter students, highlighting accessibility as both a practical and psychological barrier to engagement. Younger students—especially first-year students—reported higher utilization, possibly due to greater campus integration and exposure to first-year wellness programming. Additionally, gender disparities in usage reflect patterns seen in past studies, where male students more frequently engage in recreational activities (Henchy, 2011), pointing to the need for inclusive programming tailored to underrepresented groups.

In line with Hypotheses 2a and 2b, users consistently reported a broader and more profound set of benefits, particularly in areas of physical fitness, stress management, and overall well-being. Notably, both users and non-users ranked self-confidence and weight control among their top perceived benefits, suggesting latent interest and awareness even among those not actively participating. This supports the notion that cues to action and targeted interventions may effectively

convert non-users into participants by leveraging their existing health motivations (Catalano et al., 2024).

Findings related to participation barriers corroborate Hypotheses 3a and 3b, with personal schedules and lack of time emerging as the most commonly cited constraints, particularly among commuter students. These barriers are well documented in health behavior literature and reaffirm the role of perceived barriers in impeding action (Guo, 2024). The higher levels of constraint reported by off-campus students emphasize the importance of flexible scheduling, satellite programming, or virtual wellness options to expand access.

The findings related to service satisfaction substantiate the relevance of the SERVQUAL framework in evaluating campus recreation. Tangible factors such as facility cleanliness, safety, and appearance received the highest satisfaction ratings, aligning with prior research emphasizing the importance of the tangibles dimension (Parasuraman et al., 1988). Similarly, positive evaluations of staff friendliness and competence reinforce the value of assurance and empathy in user experience. However, lower satisfaction ratings for equipment availability and facility space indicate specific areas for strategic investment and improvement. These findings offer critical insights for service managers seeking to enhance user retention and operational efficiency.

Contrary to earlier assumptions, the influence of the recreation center on students' enrollment decisions was modest, particularly among non-users. This finding suggests that while recreational services contribute meaningfully to student satisfaction and retention post-enrollment, they do not serve as primary drivers of college selection. These results are in line with Hesel (2000), who found that students view recreational amenities as

secondary to academic and financial considerations in the college choice process.

### ***Theoretical and Practical Implications***

The findings of this study offer several important theoretical contributions to the literature on health behavior, service quality, and student development in higher education. Grounded in the Health Belief Model (HBM), the results reinforce and extend theoretical understandings of how health beliefs and perceptions of service quality influence students' engagement with campus recreation services.

First, this study provides empirical support for the application of the Health Belief Model (Rosenstock, 1974) in the context of collegiate recreation. By demonstrating that the perceived importance of recreation and health significantly predicts usage behavior, the study confirms the relevance of perceived benefits and susceptibility in explaining preventive health behaviors among college students. These results align with previous findings (Odunsi & Farris, 2023; Pearlman et al., 2021) and further show how demographic variables such as residency and class standing operate as structural barriers or facilitators of recreational participation—consistent with the HBM constructs of perceived barriers and cues to action.

Second, the study reinforces the applicability of the SERVQUAL framework (Parasuraman et al., 1988) in evaluating campus-based service environments. High satisfaction with aspects such as cleanliness, facility accessibility, and safety supports the tangibles and reliability dimensions of the model. Similarly, positive perceptions of staff friendliness and responsiveness validate the dimensions of assurance, empathy, and responsiveness. However, lower satisfaction scores related to equipment availability and

recreation space point to specific service delivery gaps. These discrepancies between expectations and experiences confirm SERVQUAL's usefulness in identifying operational weaknesses and guiding service improvement in non-commercial settings like student recreation.

Furthermore, the study contributes to student development theory by demonstrating the centrality of co-curricular resources—particularly recreational services—in supporting student well-being, campus engagement, and persistence. The findings align with Tinto's (1993) model of student integration, which emphasizes the role of both academic and social involvement in retention. By offering students opportunities for physical health improvement and social connection, campus recreation serves as an institutional touchpoint that supports holistic development.

Beyond its theoretical implications, the study yields practical recommendations for enhancing student engagement and retention through strategic use of recreational services. Given that students who place greater importance on health and recreation are more likely to use these services, targeted health communication campaigns can serve as effective cues to action. Messaging strategies should emphasize both tangible and psychological benefits (e.g., stress reduction, social support, academic performance) and be tailored to underrepresented groups—such as commuters, upperclassmen, and female students—using digital platforms, peer outreach, and wellness ambassadors.

Since time constraints emerged as a primary barrier, institutions should improve accessibility through extended facility hours, online or hybrid fitness programs, and mobile or satellite offerings. Introducing flexible formats—such as brief lunchtime workouts or evening wellness

sessions—can help accommodate diverse student schedules. Additionally, the lower satisfaction with equipment availability and space suggests that facility enhancements are necessary. Periodic audits and user surveys can inform decisions about resource allocation, layout optimization, and potential repurposing of underutilized spaces. Recreational services also present opportunities for student employment and leadership development. Expanding roles in program coordination and peer mentoring, along with structured leadership training, can strengthen student engagement while supporting career readiness and institutional learning outcomes.

Finally, integrating recreational engagement into orientation programs and first-year experience initiatives can establish early ties to campus life. Recreational facilities may not heavily influence enrollment decisions, but their ongoing impact on student satisfaction and well-being suggests that they should be integrated into comprehensive retention strategies. Cross-functional collaboration—linking recreation with advising, residence life, and counseling—can help identify and support at-risk students through a holistic approach to student success.

### ***Limitations and Future Research Directions***

Despite offering valuable theoretical and practical insights, this study has several limitations. First, the use of cross-sectional survey data restricts causal interpretation. Future research should adopt longitudinal or experimental designs to examine temporal dynamics and causal pathways between health beliefs, recreational service usage, and student outcomes. Second, the sample may not fully represent the broader student population. The overrepresentation of younger, on-campus students may limit the generalizability of findings to commuter or nontraditional student

groups. Broader sampling strategies are recommended to ensure more inclusive representation. Third, the study was conducted at a single institution, limiting external validity. Institutional differences in campus culture, facility quality, and geographic context may influence student behavior. Comparative research across diverse institutions (e.g., rural vs. urban, public vs. private) is necessary to enhance generalizability.

Future research should also explore how engagement with recreational services evolves over time and its long-term effects on student health, satisfaction, and retention. Tracking student cohorts across semesters could provide insight into patterns of engagement and disengagement, as well as the effectiveness of interventions. In addition, qualitative methods—such as interviews and focus groups—could offer richer perspectives on the motivations and constraints experienced by users and non-users. This approach would be particularly helpful in unpacking subgroup differences by gender, race/ethnicity, and residential status. Lastly, as digital and hybrid wellness offerings become more prominent, future studies should examine how virtual recreation services complement or substitute in-person activities and influence student engagement and wellness outcomes.

### **6. Conclusion**

---

This study offers a comprehensive, theory-informed examination of student engagement in campus recreation, grounded in the Health Belief Model and service quality frameworks. The findings highlight the central role of perceived health benefits and self-efficacy in predicting participation, while identifying perceived barriers—particularly among commuter students—as significant inhibitors of use.

Additionally, service quality dimensions such as cleanliness, safety, and staff responsiveness were closely associated with user satisfaction and continued engagement. By integrating health behavior theory with service quality assessment, this research advances a more holistic understanding of student engagement in collegiate recreation. The study not only reinforces key constructs of the HBM but also affirms the

diagnostic value of the SERVQUAL model in a campus-based setting. Practically, the results offer actionable insights for enhancing access, tailoring communication, and improving service delivery to support student wellness.



## REFERENCES

- Belch, H., Gebel, M., & Maas, G. (2001). Relationship between student recreation complex use, academic performance, and persistence of first-time freshmen. *NASPA Journal*, 38(2), 254–268. <https://doi.org/10.2202/1949-6605.1138>
- Catalano, H. P., Christofora, J., Richards, K., Hawkins Shaw, K. H., & Kiser, K. (2024). Predicting COVID-19 booster intentions among college students using the health belief model: advancing health promotion strategies for uptake. *Frontiers in Public Health*, 12. <https://doi.org/10.3389/fpubh.2024.1395941>
- D'Alonzo, K.T., Stevenson, J.S., & Davis, S.E. (2004). Outcomes of a program to enhance exercise self-efficacy and improve fitness in black and Hispanic college age women. *Research in Nursing & Health*, 27(5), 357-369.
- Dalgarn, M. K. (2001). The role of the campus recreation center in creating a community. *Recreational Sports Journal*, 25(1), 66–72. <https://doi.org/10.1123/nirsa.25.1.66>
- Forrester, S., McAllister-Kenny, K., & Locker, M. (2018). Association Between Collegiate Recreational Sports Involvement and Undergraduate Student Retention. *Recreational Sports Journal*, 42(1), 64–74. <https://doi.org/10.1123/RSJ.2017-0004>
- Guo, N. (2024). Healthy Lifestyle and the Health Belief Model among College Students Enrolled under Physical Education Classes. *International Journal For Multidisciplinary Research*, 6(6). <https://doi.org/10.36948/ijfmr.2024.v06i06.33378>
- Haines, D. J., & Fortman, T. L. (2008). The college recreational sports learning environment. *Recreational Sports Journal*, 32(1), 52–61. <https://doi.org/10.1123/rsj.32.1.52>
- Henchy, A. (2011). The influence of campus recreation beyond the gym. *Recreational Sports Journal*, 35(2), 174–181. <https://doi.org/10.1123/rsj.35.2.174>
- Kampf, S., & Teske, E. J. (2013). Collegiate Recreation Participation and Retention. *Recreational Sports Journal*, 37(2), 85-96. <https://doi.org/10.1123/rsj.37.2.85>
- Kim, H., Ahn, J., & No, J. (2012). Applying the Health Belief Model to college students' health behavior. *Nutrition Research Practice*, 6(6), 551-558. <https://doi.org/10.4162/nrp.2012.6.6.551>

- Knepp, D. S. (2011). *Recreation center participation and its relationship to academic success* (Order No. 3486986). Available from ProQuest Dissertations & Theses Global. (911991776). Retrieved from <https://www.proquest.com/dissertations-theses/recreation-center-participation-relationship/docview/911991776/se-2>
- Ko, Y. J., & Pastore, D. L. (2007). An instrument to assess customer perceptions of service quality and satisfaction in campus recreation programs. *Recreational Sports Journal*, 31(1), 34-42.
- Lindsey, R. R. (2012). The Benefits and Satisfaction of Participating in Campus Recreational Sports Facilities and Programs among Male and Female African American Students: A Pilot Study. *Recreational Sports Journal*, 36(1), 13-24. <https://doi.org/10.1123/rsj.36.1.13>.
- Lindsey, R., & Sessoms, E. (2006). Assessment of a campus recreation program on student recruitment, retention, and frequency of participation across certain demographic variables. *Recreational Sports Journal*, 30(1), 30-39.
- McFadden, C. W., & Carr, J. W. (2015). Collegiate Recreation Student Employee as Student Leader. *New Directions for Student Leadership*, 147, 65–76. <https://doi.org/10.1002/YD.20144>
- Miller, J. J. (2011). The influence of campus recreation beyond the gym. *Recreational Sports Journal*, 35(2), 174–181. <https://doi.org/10.1123/rsj.35.2.174>
- Miller, J. J. (2018). Impact of a University Recreation Center on Social Belonging and Student Retention. *Recreational Sports Journal*, 35(2), 117-129. <https://doi.org/10.1123/rsj.35.2.117>
- Miller, J. J., & Croft, J. (2022). The Influence of University Recreation Centers on Student Return and Retention during COVID-19. *Recreational Sports Journal*, 46(2), 131–140. <https://doi.org/10.1177/15588661221097701>
- Mixson-Brookshire, D., Goldfine, R. A., & Brookshire, D. (2023). Student Recreation Center. *The Journal of College Orientation and Transition*, 30(1). <https://doi.org/10.24926/jcotr.v30i1.4952>
- Montgomery, A (2016). *Recreational Participation and Perceived Stress Levels of College Students and if Leisure Satisfaction Mediates Their Relationship*. Graduate Theses. 29. <https://digitalcommons.winthrop.edu/graduatetheses/29>

- Odunsi, I. A., & Farris, K. L. (2023). Predicting College Students' Preventative Behavior During a Pandemic: The Role of the Health Belief Model, Source Credibility, and Health Literacy. *American Behavioral Scientist*, 000276422311640. <https://doi.org/10.1177/00027642231164044>
- Osman, R. W., Cole, S. T., & Vessell, C. R. (2006). Examining the Role of Perceived Service Quality in Predicting User Satisfaction and Behavioral Intentions in a Campus Recreation Setting. *Recreational Sports Journal*, 30(1), 20-29. <https://doi.org/10.1123/rsj.30.1.20>
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40
- Pearlman, R. L., Patel, V., Davis, R. E., Ferris, T. S., Gruszynski, K., Elledge, T., Bhattacharya, K., & Nahar, V. K. (2021). Effects of health beliefs, social support, and self-efficacy on sun protection behaviors among medical students: testing of an extended health belief model. *Archives of Dermatological Research*, 313(6), 445-452. <https://doi.org/10.1007/S00403-020-02123-9>

- Roddy, L., Pohle-Krauza, R. J., & Geltz, B. (2017). Recreation Center Utilization Affects Academic Outcomes. *Recreational Sports Journal*, 41(1), 67-75. <https://doi.org/10.1123/rsj.2016-0041>
- Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2(4), 328-335. <https://doi.org/10.1177/10901981740020403>
- Simpson Jr., A. L. (2020). The Impact Participation in Recreational Sport in College Has on Student Development and Learning. In A. Spicer-Runnels & T. Simpson (Eds.), *Developing an Intercultural Responsive Leadership Style for Faculty and Administrators* (pp. 238-246). IGI Global Scientific Publishing. <https://doi.org/10.4018/978-1-7998-4108-1.ch015>
- Sheriff, N. M., Sahak, S. Z., Razali, F. N. F. M., Fadzli, N. N. M., & Japri, N. N. (2022). Dimensions of Sports and Recreational Service Quality Influencing Fitness Centre's Member Satisfaction. *Jurnal Intelek*, 17(2), 168-179. <https://doi.org/10.24191/ji.v17i2.18202>
- Suttikun, C., & Chang, H. J. (2016). College Students' Satisfaction and Involvement with the Recreation Center Based on

Perceived Service Quality: The Moderating Effects of Health and Weight Consciousness. *Recreational Sports Journal*, 40(2), 179–192.  
<https://doi.org/10.1123/RSJ.2015-0046>

Stromdahl, D. (2017). *Enhancing the Experience: An Analysis of Collegiate Recreation's Impact on Student Learning*. [Unpublished Master's thesis]. Bowling Green State University, Bowling Green.  
[https://scholarworks.bgsu.edu/cgi/viewcontent.cgi?article=1055&context=hmsls\\_mastersprojects](https://scholarworks.bgsu.edu/cgi/viewcontent.cgi?article=1055&context=hmsls_mastersprojects)