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FACTORS INFLUENCING STUDENTS' SPORTS PARTICIPATION HABITS: A CASE STUDY OF BADMINTON

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Abstract

The study "Factors Influencing Students' Sports Participation Habits – The Case of Badminton" aims to identify and analyze the extent to which various factors affect the formation and maintenance of badminton-playing habits among university students. Based on the Theory of Planned Behavior (TPB), the research examines the influence of three factors: Attitude toward badminton, Subjective norms, and Perceived behavioral control on badminton-playing habits. Using a mixed-method approach that combines qualitative and quantitative analysis, the findings reveal with 95% confidence that: Perceived behavioral control (PBC) has a significant impact of 0.737 on badminton-playing habits (BPH); while Subjective norms (SN) exert an influence of 0.151. The factor Attitude toward badminton (ATB) does not reach statistical significance to conclude its effect on the dependent variable "Badminton-playing habits" (BPH). Based on these results, the research team proposes several solutions to enhance students' badminton-playing habits.

Keywords:

Badminton, habits, influencing factors, university students.

1. Introduction

Sports play an important role in improving physical health, strengthening mental resilience, and developing social skills, thereby fostering a healthy lifestyle. In the context of modern life, students have many options for recreational activities. However, the habit of engaging in sports remains crucial due to the benefits it provides. Among popular sports, badminton stands out for its flexibility, accessibility, and low cost, making it particularly suitable for practice after classes. Badminton not only enhances endurance, reflexes, and agility but also contributes to community bonding through exchange activities and competitions. Although many students are aware of the benefits of sports practice, they have not yet developed a regular habit of playing sports. This situation also applies to badminton - a sport that is widely popular but still limited in terms of habit maintenance.

In the context of increasing physical inactivity, particularly among university students due to academic pressure and the appeal of online activities, studying the factors influencing sports participation habits has become essential. By focusing on badminton as a case study, this research not only clarifies the factors that encourage or hinder students in maintaining regular practice habits but also provides a scientific basis for developing solutions to promote student participation specifically in badminton and sports in general. The study concentrates on examining the factors affecting badminton-playing habits of students within the university environment. The scope includes individual factors (motivation, health awareness, personal interests), family factors (encouragement, sports traditions), institutional factors (facilities, physical education programs, extracurricular activities), and policy factors (regulations, orientations, and sports movements). Using a mixed-method approach that combines qualitative and quantitative analysis, the research identifies the factors influencing badminton-playing habits among students in Hanoi and the extent of their impact. Based on these findings, the study offers discussions and recommendations to enhance students' badminton-playing habits in the current context.

2. Theoretical basis and Research Overview

2.1. Theoretical basis

- Behavioral Theory

Theory of Reasoned Action (TRA). The model of the Theory of Reasoned Action (TRA) developed by Fishbein & Ajzen (1975) focuses on consumer behavior and identifies their behavioral tendencies. Within behavioral intention, one component is the attitude toward the behavior, and another is subjective norms (The influence of others also shapes individuals' attitudes). This model predicts and explains the tendency to perform a behavior through consumers' attitudes toward the behavior itself, rather than their attitudes toward a product or service.

Theory of Planned Behavior (TPB). The Theory of Planned Behavior is the development and improvement of the Theory of Reasoned Action (TRA) by Fishbein & Ajzen (1975) and is a widely used theory when predicting a specific behavior of any individual, such as the behavior of choosing to purchase products or services, … The factors influencing decision-making are personal attitude and subjective norms. Personal attitude is measured by beliefs and evaluations regarding the outcomes of the behavior. Ajzen (1991) defines subjective norm as the perception of influential others who think that the individual should or should not perform a certain behavior. The Theory of Planned Behavior also adds a third factor, perceived behavioral control. Perceived behavioral control refers to the individual's perception of how easy or difficult it is to perform the behavior (related to the availability of necessary resources, knowledge, and opportunities to apply).

- Concept of Habit

Habit is a chain of conditioned reflexes formed through practice. Conditioned reflexes are behaviors that are repeated in daily life and training, as the result of living activities and self-cultivation in everyday life (Nguyen Thi My Giang, 2015).

- Theoretical Framework of Badminton

Badminton is a competitive sport using rackets and shuttlecocks, in which players hit the shuttle across the net so that it lands in the opponent's court. The sport originated from the game "Poona" in India, was introduced to England, and developed into modern badminton; since 1992, badminton has become an official Olympic sport. Badminton not only improves health, reflexes, agility, and discipline but also serves as a popular sport that promotes social interaction and recreation. In terms of technique, players need to master basic movements (grip, serve, smash, footwork) and apply appropriate tactics (singles, doubles) to achieve effectiveness in competition (Nguyen Duc Thanh & Do Tan Phong, 2013).

Badminton has a long history, originating from shuttlecock games in India and China. However, the formation of the modern sport as it is today began in England in the late 19th century. In 1992, badminton officially became an Olympic sport.

Badminton is a competitive sport played between two players (singles) or two pairs of players (doubles) on a rectangular court divided into two equal halves by a net. Players score points by using the racket to hit the shuttlecock so that it lands in the opponent's court or when the opponent commits a fault. Each side is allowed only one hit to return the shuttlecock to the opponent's court. Faults are determined by the umpire or line judges. In the absence of referees, the two players agree with each other. Each rally ends with one point scored, and a game finishes when one side reaches the required number of points first.

2.2. Research Overview

Many empirical studies have pointed out the importance of maintaining physical activities, while some studies have also identified factors that influence the habit of physical exercise and sports participation in general.

The study by Zoran et al. (2013) aimed to determine the importance that university students attach to physical activity, to distinguish the sports that students prefer and wish to participate in, and to identify differences in attitudes toward individual sports by gender. The results showed that university students are clearly aware of the importance of exercising and physical training. Zhao Huibo (2018) introduced the concept of physical exercise habits, analyzed the psychology of habit formation, and examined the factors influencing the process of habit development. The article also emphasized the necessity of strengthening sports facilities and equipment, creating a favorable environment for students to engage in physical training, and promoting the cultivation of exercise habits among students from multiple perspectives.

The study by Henk Aarts, Theo Paulussen, and Herman Schaalma (1997) showed that health-promoting exercise habits often decline when individuals enter adolescence. Therefore, exercise habits need to be encouraged and maintained from an early age. The article argued that physical exercise habits can be automatically activated by situational cues that typically occur before the behavior takes place. These habits can improve health through consistent maintenance over a long period of time. Subsequently, barriers to the formation of exercise habits were

discussed, along with interventions proposed to predict and overcome these barriers. Eddy Jacobb Tolano Fierros (2020) analyzed the reasons and exercise habits of ninth-grade students in Mexico. The results revealed that the frequency of physical activity participation among female students was lower than that of male students, although both groups were at a low level. A concerning finding was that a portion of students did not engage in physical exercise due to lack of time, with this proportion being the majority among male students. Based on the research results, the author recommended that teachers and parents should strengthen encouragement for students to participate in physical activities to improve quality of life.

The study by Vern Seefeldt, Robert M. Malina, and Michael A. Clark (2002) identified the factors influencing adults in initiating and maintaining physical exercise programs, including non-modifiable factors (age, gender, race, ethnicity) and modifiable factors (behavioral and personality characteristics, environmental conditions, and community context). The study by Susanne et al. (2020) showed that repeating behavior along with positive emotional states at the end of a training session can be beneficial in building exercise initiation habits. Quifa Chen (2019) pointed out that the causes affecting students' physical exercise habits stem from four aspects: individual factors, family, school, and policy.

In addition, several empirical studies have identified factors influencing students' habits. The study by Nguyen Trung Vuong et al. (2024) on factors affecting students' saving habits in Ho Chi Minh City revealed three influencing factors: (1) Self-control; (2) Saving decisions; and (3) Family influence. The study by Nguyen Thuy Quynh Loan and Vo Hoang Duy (2013) examined factors affecting students' specialized reading habits in Ho Chi Minh City. The proposed research model included eight influencing factors: lecturers, students, home environment, classroom environment, school environment, social environment, virtual environment, and document characteristics. Based on a survey sample of 503 students from Ho Chi Minh City University of Technology, the findings showed that students' specialized reading habits were at a low level, and five factors had statistically significant impacts on these habits: lecturers, home environment, classroom environment, social environment, and virtual environment.

Although previous studies have identified factors influencing habits, no specific research has examined the factors affecting badminton-playing habits of individuals in general and students in particular. Some international studies have highlighted the importance of maintaining sports habits, as well as the factors influencing sports habits and behaviors, but they only refer to physical activity in general without analyzing each specific sport, including badminton. Therefore, this research group incorporates the factors influencing students' badminton-playing habits into a model to analyze their impact level, thereby addressing the current research gap.

3. Research methodology

3.1. Data collection methods

To study "*Factors Influencing Students' Sports Participation Habits – The Case of Badminton*", the research team employed two research methods: desk research (reviewing

published documents and media sources) and sociological survey (collecting questionnaires from targeted respondents). The collected data were then compiled and analyzed using Excel and SMARTPLS software.

Through the desk research method, the research team reviewed documents on sports in general and badminton in particular, as well as articles related to factors influencing sports and badminton habits published in the media. Based on this, the team developed a survey questionnaire to conduct a sociological investigation into the factors affecting students' badminton-playing habits.

Regarding the sociological survey method, the research team conducted a preliminary survey and discussions with individuals who have access to or play badminton. The discussions used a preliminary measurement scale of factors influencing students' badminton-playing habits. Participants were free to express their opinions on aspects related to badminton habits and the characteristics of the sport. The preliminary sample size consisted of 10 people. The results of the preliminary study were used to refine the research questionnaire and research model. After finalizing the survey questionnaire, the research team distributed and collected responses via a Google Form link (https://forms.gle/gEWmUJx36zjS6hKk6) targeting university students.

The data collection method was conducted using convenient sampling and the "snowball" method (a technique in which subsequent respondents are identified based on the suggestions or referrals of previously interviewed participants) to ensure the required sample size. A total of 451 questionnaires were collected, of which 365 respondents reported having the habit of playing badminton; therefore, 365 valid questionnaires were included in the quantitative analysis.

3.2. Data Analysis Methods

The quantitative research method was conducted to process the data collected from the survey on factors influencing students' badminton-playing habits. SMARTPLS software was used to test the hypotheses and evaluate the impact level of the factors.

Step 1: Measurement Model Evaluation

The evaluation of the measurement model is based on examining the values of indicator reliability (outer loadings), scale reliability (Cronbach's Alpha), convergent validity, and discriminant validity.

Step 2: Structural Model Evaluation

After the measurement model was satisfactorily evaluated, the structural model was assessed through the examination of causal relationships, path coefficients, the overall coefficient of determination (R^2), and the effect size (f^2).

In addition, for the survey questions designed in the 5-point Likert scale, the author determined the interval values and the mean values of the given statements, identified the range in which the average score falls, and compiled the results into tables for synthesis.

The interval value = (Maximum – Minimum) / n = (5-1)/5 = 0.8

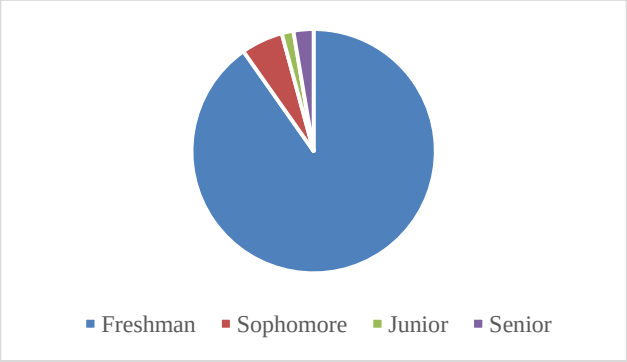
The evaluation thresholds based on the mean value are as follows:
+ 1.00 - 1.80: Strongly Disagree/No Influence at All/Very Difficult/Very Poor
+ 1.81 - 2.60: Disagree/No Influence/Difficult/Poor
+ 2.61 - 3.40: Neutral/Normal/No Opinion
+ 3.41 - 4.20: Agree/Influence/Easy/Good
+ 4.21 - 5.00: Strongly Agree/Very Influential/Very Easy/Very Good

4. Research results

4.1. Description of Survey Participants

The study "Factors Influencing Students' Sports Participation Habits – The Case of Badminton" was conducted through a questionnaire survey, with a total of 451 students participating. Among them, first-year students accounted for the highest proportion with 407 respondents (90.2%), followed by second-year students with 25 (5.5%), third-year students with 7 (1.6%), and fourth-year students with 12 (2.7%). These results indicate that the majority of the survey sample consisted of first-year students – a group in the early stage of adapting to university life and more susceptible to factors shaping sports habits.

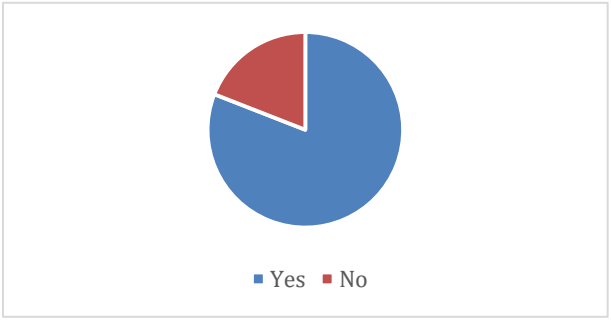
Figure 1. Distribution by Academic Year



Source: Survey Results

Out of a total of 451 students surveyed, 365 students (80.9%) reported that they know how to play badminton, while 86 students (19.1%) answered "No." This reflects the relatively high popularity of badminton in students' daily life, although a considerable proportion has not yet been exposed to or participated in this sport.

Figure 2. Proportion of Students Who Know How to Play Badminton



Source: Survey Results

Among the 365 students who reported being able to play badminton, the group that plays "occasionally" accounted for the highest proportion with 51% (186 students). This was followed by the group that plays "rarely," representing 20.3%, indicating that a considerable number of students tend not to maintain this sporting activity regularly. The "normal" group accounted for 18.4%, while those who play "frequently" made up only 7.1%. Notably, only 12 students (3.3%) reported playing badminton "very frequently," reflecting a relatively low proportion of individuals who sustain this activity consistently. Thus, the survey results suggest that although badminton is a familiar and popular sport among students, the habit of playing sports regularly has not yet been strongly established, with the majority of students participating only at an irregular level.

4.2. Model Testing Results

Results of Assessing the Quality of Observed Variables in the Measurement Model

The research team conducted model estimation, and the quality of the observed variables was assessed through outer loadings. The quality of the influencing observed variables is presente d in Table 3.

Table 3. Outer Loadings of Factors Influencing Students' Badminton-Playing Habits in Hanoi

	CCQ	NTKS	TDCL	TQCL_
CCQ1	0.917			
CCQ2	0.919			
CCQ3	0.887			
CCQ4	0.878			
NTKS1		0.943		
NTKS2		0.932		
NTKS3		0.886		
TDCL2			0.949	
TDCL3			0.957	
TQCL1				0.966
TQCL2				0.963

TQCL3				0.968
TDCL1			0.814	

Source: Results of the research team's inspection

The results from Table 3 indicate that the outer loadings of all the total correlation coefficients of the variables influencing students' badminton-playing habits in Hanoi are greater than 0.7 (Hair et al., 2016), demonstrating that the observed variables are significant.

Reliability Testing of Scales

Reliability Assessment of the Measurement Scale for Factors Influencing Students' Badminton-Playing Habits in Hanoi Using PLS-SEM through Two Main Indicators: Cronbach's Alpha and Composite Reliability (CR).

Table 4. Reliability Coefficients (Cronbach's Alpha) and Composite Reliability of Factors Influencing Students' Badminton-Playing Habits in Hanoi

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
CCQ	0.922	0.923	0.945	0.811
NTKS	0.910	0.920	0.943	0.848
TDCL	0.896	0.956	0.934	0.826
TQCL_	0.963	0.963	0.976	0.932

Source: Results of the research team's inspection

According to Table 4, after conducting reliability testing using Cronbach's Alpha, the results for the factors were as follows: Subjective Norms (CCQ) = 0.922; Perceived Behavioral Control (NTKS) = 0.910; Attitude toward Badminton (TDCL) = 0.896; and Badminton-Playing Habit (TQCL) = 0.963. Thus, all measurement scales satisfied the condition of being greater than 0.7 (DeVellis, 2012) and did not violate any rules requiring variable elimination. Therefore, no variables were excluded, and the scales can be considered acceptable in terms of reliability.

The Composite Reliability (CR) of all observed variables was also greater than 0.7 (Bagozzi & Yi, 1988) (Table 4). Therefore, the measurement scale demonstrates reliability, has analytical significance, and can be used in the subsequent factor analysis.

Convergence

According to the data analysis results in Table 4, the Average Variance Extracted (AVE) values for the factors were as follows: Subjective Norms (CCQ) = 0.811; Perceived Behavioral Control (NTKS) = 0.848; Attitude toward Badminton (TDCL) = 0.826; and Badminton-Playing Habit (TQCL) = 0.932. Thus, the AVE values of all variables were greater than 0.5 (Hock & Ringle, 2010), indicating that the model satisfies the conditions for convergent validity.

Discriminant Validity

The results in Table 5 regarding the Fornell-Larcker criterion of the research model for the factors—Subjective Norms (CCQ), Perceived Behavioral Control (NTKS), Attitude toward Badminton (TDCL), and Badminton-Playing Habit (TQCL)-all ensured discriminant validity, as all square root AVE values on the diagonal were higher than their off-diagonal values. Therefore, in terms of discriminant validity, both criteria-he cross-loadings and the Fornell-Larcker criterion were satisfied.

Table 5. Fornell-Larcker Criterion of the Research Model on Factors Influencing Students' Badminton-Playing Habits in Hanoi

	CCQ	NTKS	TDCL	TQCL_
CCQ	0.901			
NTKS	0.745	0.921		
TDCL	0.817	0.669	0.909	
TQCL_	0.708	0.856	0.625	0.965

Source: Results of the research team's inspection

f^2 Value

The $\mathbf{f^2}$ value represents the extent of influence of a construct (factor) when it is removed from the model. The $\mathbf{f^2}$ values of 0.02, 0.15, and 0.35 correspond to small, medium, and large effects (Cohen, 1988) of the exogenous variable, respectively. If the effect size is < 0.02, it is considered to have no effect.

Table 6. Summary table of f^2 values

	CCQ	**NTKS**	**TDCL**	**TQCL_**
CCQ				0.023
NTKS				**0.918**
TDCL				**0.000**
TQCL_				

Source: Results of the research team's inspection

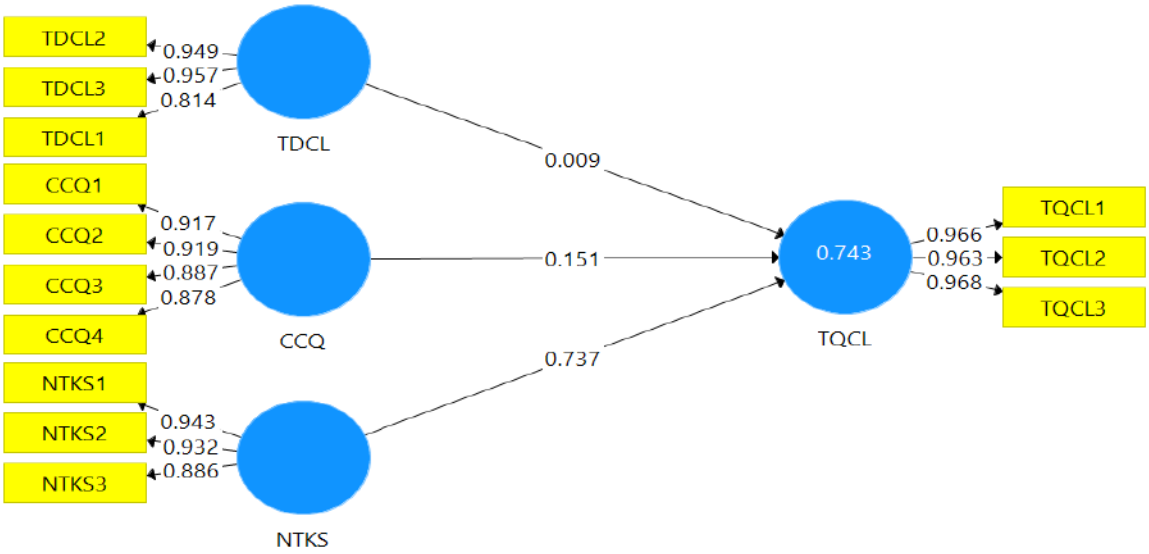
In this model, Table 6 shows that Perceived Behavioral Control (NTKS) has a strong influence on Badminton-Playing Habit (TQCL), with an effect size of 0.918. Subjective Norms (CCQ) have a minor influence on TQCL, with an effect size of 0.023. However, the f^2 value of Attitude toward Badminton (TDCL) is less than 0.02, indicating that TDCL does not have an effect on TQCL.

4.3.2. Results of assessing the influence level using the structural model

Evaluation of Influencing Relationships

Regarding the relationships and the influence level of the factors affecting students' badminton-playing habits in Hanoi on SMARTPLS, they are presented in Figure 3.

Figure 3. Factors Influencing Students' Badminton-Playing Habits in Hanoi



Source: SMARTPLS accreditation results of the research team

The results of the Bootstrap analysis to evaluate the relationships are presented in Table 7. Accordingly, the variables Perceived Behavioral Control (NTKS) and Subjective Norms (CCQ) have P-values < 0.05, indicating that NTKS and CCQ are statistically significant in demonstrating a positive relationship with Badminton-Playing Habit (TQCL). Thus, hypotheses H1 and H2 are accepted. In contrast, the factor Attitude toward Badminton (TDCL) has a P-value > 0.05, indicating that this factor is not statistically significant in demonstrating a relationship with TQCL. (Hypothesis H3 is not accepted).

Table 7. Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
CCQ => TQCL	0.151	0.150	0.073	2.072	0.039
NTKS => TQCL	0.737	0.736	0.048	15.276	0.000
TDCL => TQCL	0.009	0.012	0.057	0.152	0.879

Source: SMARTPLS accreditation results of the research team

The test results in Table 7 show that, with 95% confidence, Perceived Behavioral Control (NTKS) has an effect size of 0.737 on Badminton-Playing Habit (TQCL), while Subjective Norms (CCQ) have an effect size of 0.151 on TQCL. The factor Attitude toward Badminton (TDCL) is not statistically significant to conclude its influence on the dependent variable "Badminton-Playing Habit" (TQCL).

Thus, the regression equation is as follows:
TQCL = 0.151*CCQ + 0.737*NTKS

Evaluate the overall coefficient that determines R^2 (R square)

The result of the PLS analysis gives an R^2, which reflects the explanatory power of the independent variables for the dependent variable. The R^2 index measures the coefficient of determination (R-square value), which is an indicator to measure the model's goodness of fit (the explanatory power of the model). According to Hair & et al. (2010), the proposed R-square values are at the levels of 0.75, 0.50, or 0.25.

Table 8. Explanatory power of independent variables for the dependent variable (R Square)

	R Square	R Square Adjusted
TQCL_	0.743	0.741

Source: Results of the research team's inspection

The results from Table 8 show that R^2 of the "badminton-playing habit" factor – TQCL equals 0.743 and the adjusted R^2 equals 0.741, which is appropriate in this study case. Thus, the independent factors explain 74.3% of the factor "students' badminton-playing habits in Hanoi (TQCL)".

Assessment of Model Fit Using SRMR (Standardized Root Mean Square Residual)

The Standardized Root Mean Square Residual (SRMR) index indicates the goodness of fit of the research model. According to Hu & Bentler (1999), a model is generally considered to have a good fit when the SRMR value is less than 0.08.

Table 9. Standardized Root Mean Square Residual (SRMR)

	Saturated Model	Estimated Model
SRMR	0.049	0.049

Source: Results of the research team's inspection

The results of the SRMR analysis in Table 9 show that the SRMR value is less than 0.08. Therefore, the research model is considered appropriate for data analysis.

5. Some Discussions

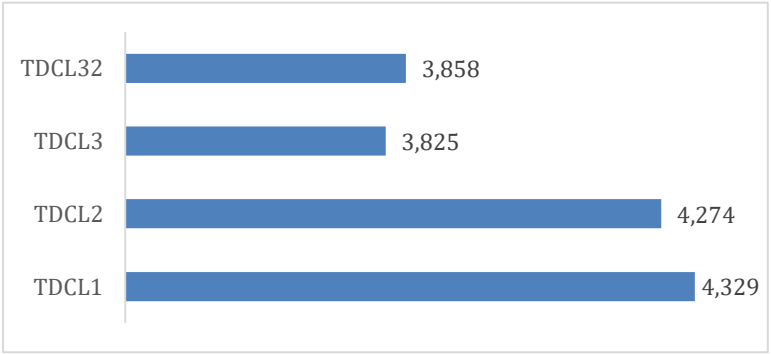
Factor "Attitude toward Badminton"

The factor "Attitude toward Badminton" was measured through four observed variables: TDCL1 – Playing badminton is good for physical health; TDCL2 – Playing badminton is good for mental health; TDCL3 – I like playing badminton; and TDCL4 – I feel happy and excited when playing badminton. The survey results show that the mean scores of these variables are 4.329, 4.274, 3.825, and 3.858, respectively.

Based on the 5-point Likert scale with an interval value of 0.8, the evaluation thresholds are defined as follows: 1.00–1.80 = strongly disagree, 1.81–2.60 = disagree, 2.61–3.40 = neutral, 3.41–4.20 = agree, and 4.21–5.00 = strongly agree. According to these thresholds, the variables TDCL1 and TDCL2 both reach the level of "strongly agree," reflecting that students have a very high awareness of the physical and mental benefits of playing badminton. Meanwhile, the variables TDCL3 and TDCL4 fall within the "agree" range, indicating a positive attitude and a certain degree of enjoyment among students toward this sport.

Overall, students highly value badminton for both its health benefits and enjoyment, with health being the top priority. However, when included in the regression model, the factor "Attitude toward Badminton" did not reach statistical significance, indicating that although attitudes are positive, they are not strong enough to confirm a direct influence on students' badminton-playing habits. This suggests that positive perceptions need to be transformed into specific behaviors through clearer environmental factors and behavioral control.

Figure 8. Factor "Attitude toward Badminton"



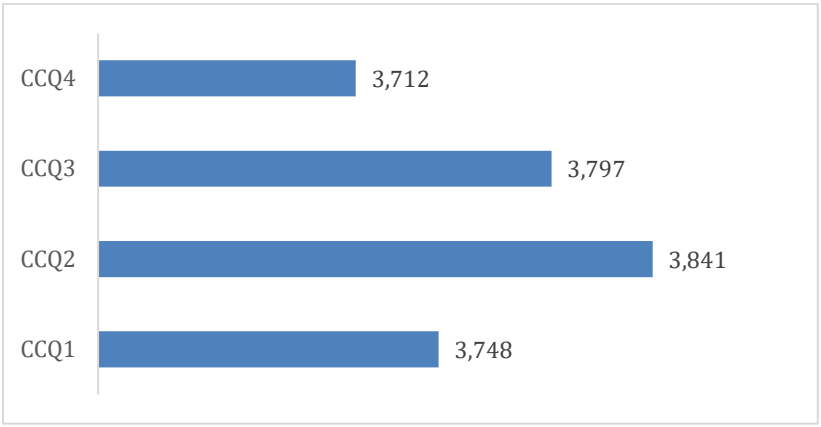
Source: Survey Results

Factor "Subjective Norms"

The factor "Subjective Norms" consists of four observed variables: CCQ1 – My friends support me in playing badminton; CCQ2 – My family supports me in maintaining the habit of playing badminton; CCQ3 – My school encourages students' badminton-playing habits; and CCQ4 – I maintain playing badminton because it is a popular sport chosen by many people. The survey results show that the mean scores of these variables range from 3.712 to 3.841, which fall within the "agree" threshold.

This indicates that students perceive relatively consistent support from friends, family, and the university in maintaining their badminton-playing habits. The high level of agreement within this group of variables demonstrates that the social environment plays an important role in encouraging students to sustain sports activities. In addition, the popularity of badminton among the student community creates a positive influence, leading many individuals to participate as a way of integrating with the collective. Overall, "Subjective Norms" emerge as a noteworthy social factor, reflecting the role of the surrounding environment in shaping sports habits, particularly in the context where students are strongly influenced by peer groups and the academic setting.

Figure 9. Factor "Subjective Norms"



Source: Survey Results

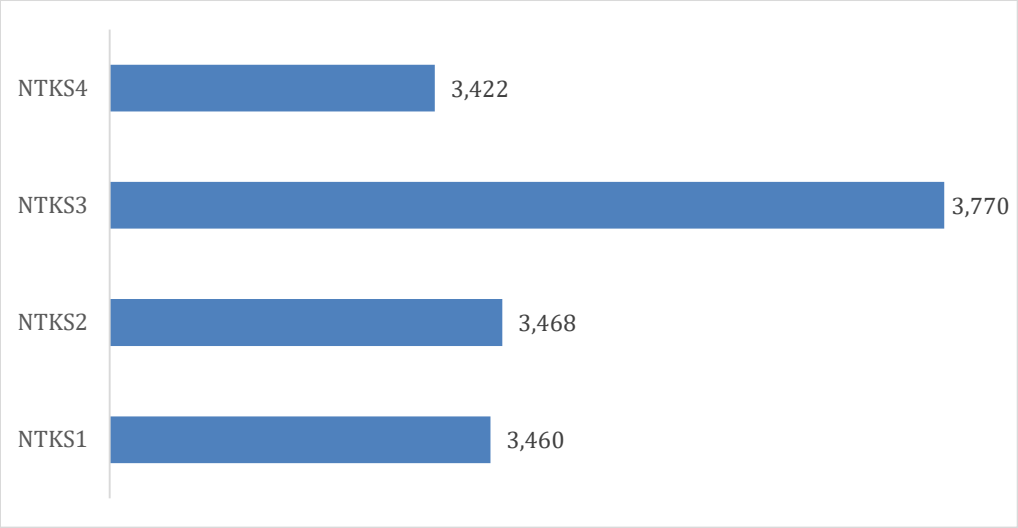
Factor "Perceived Behavioral Control"

The factor "Perceived Behavioral Control" was measured through four observed variables: NTKS1 – I have enough time to maintain the habit of playing badminton; NTKS2 – I have sufficient financial resources to practice badminton; NTKS3 – I have adequate physical ability to play badminton; and NTKS4 – I always plan to maintain the habit of playing badminton. The results show that NTKS3 has the highest mean score (3.77), which falls within the "agree" level, indicating that most students are confident in their physical ability to participate in badminton.

The remaining variables have relatively similar mean scores: NTKS2 = 3.468, NTKS1 = 3.460, and NTKS4 = 3.422. All fall within the "agree" level, except NTKS4, which is close to the "neutral" threshold. This indicates that, in general, students have sufficient time, financial resources, and physical ability to play badminton; however, they are not yet truly proactive in planning regular practice.

These results reflect that students' behavioral control still depends largely on external factors (such as schedules, facilities, and costs) rather than on personal planning. Therefore, supporting students in improving their self-regulation and training plans is essential to sustain long-term habits.

Figure 10. Factor "Perceived Behavioral Control"



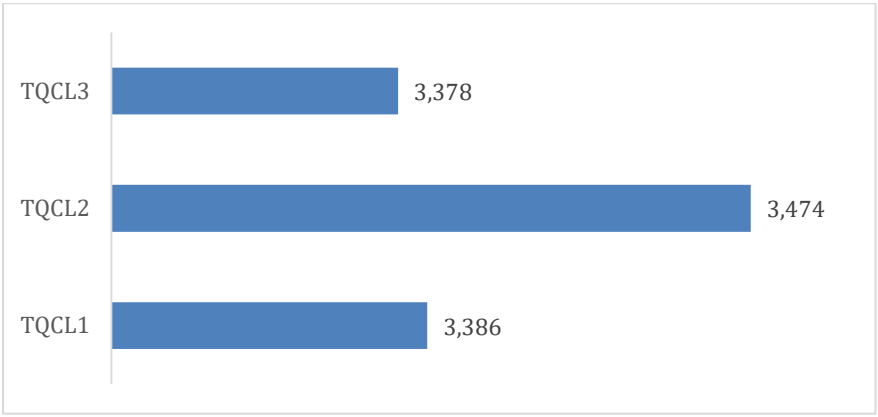
Source: Survey Results

Factor "Badminton-Playing Habits"

The factor "Badminton-Playing Habits" is identified by three observed variables: TQCL1 – I always maintain my own habit of playing badminton; TQCL2 – I often invite friends and family to play badminton; and TQCL3 – I always make specific plans to play or practice badminton.

The survey results show that the mean scores of the variables range from 3.378 to 3.474. Among them, TQCL2 has the highest mean score (3.474), falling within the "agree" level, indicating that social factors are the main drivers encouraging students to maintain their badminton-playing habits. The other two variables, TQCL1 (3.386) and TQCL3 (3.378), are between "neutral" and "agree," reflecting that although students recognize the benefits of badminton, they have not yet developed stable habits or long-term training plans. Overall, students' badminton-playing habits are at a moderately good level; positive perceptions exist, but their transformation into actual behavior remains limited. This highlights the need for support in terms of environment, social motivation, and self-regulation to help students build more sustainable sports habits.

Figure 11. Factor "Badminton-Playing Habits"



Source: Survey Results

Based on the analysis of the above factors, the research team proposes several solutions to strengthen and develop students' badminton-playing habits.

First, regarding the social environment, it is necessary to strengthen support from friends, family, and the university. Universities should actively promote the establishment of badminton clubs, friendly tournaments, or regular sports activities to create spaces for training and connection among students. The support of family and friends, whether through participation or encouragement, can help reinforce motivation and sustain exercise behavior.

Second, regarding behavioral control, educational institutions should create favorable conditions for students to easily access facilities and training time. Practical solutions include arranging practice courts, providing equipment loans, or allowing registration for the use of sports spaces outside class hours. At the same time, students should be guided in time management and training plan skills, helping them become more proactive in maintaining their habits.

Third, regarding behavioral factors and intrinsic motivation, the focus should be on encouraging group participation. Communication programs, internal sports movements, or community activities should be designed to foster collective engagement, combining recreational aspects with the maintenance of exercise habits.

Finally, although the factor "Attitude toward Badminton" was highly rated by students in terms of perception, regression analysis shows that this factor is not statistically significant. Therefore, instead of focusing solely on raising awareness or promoting the benefits of badminton, greater emphasis should be placed on providing practical opportunities, maintenance mechanisms, and specific supportive environments to transform positive perceptions into actual training behaviors.

Conclusion

From the above analysis, it can be concluded that students' badminton-playing habits are mainly influenced by social factors and their ability to exercise self-control, rather than by personal attitudes. The learning environment, support from friends and family, and encouragement policies from universities are key elements that help students maintain regular sports activities. Therefore, to strengthen and develop badminton-playing habits, universities should focus on building a favorable sports environment, enhancing social interaction and group participation opportunities, while also supporting students with time, facilities, and self-management skills in training.

In addition, although the factor "Attitude toward Badminton" does not have a significant impact in the model, it still plays a foundational role in terms of perception. Therefore, instead of stopping at awareness-raising or promoting the benefits of badminton, educational institutions should focus on transforming perception into actual behavior through extracurricular activities, internal sports movements, and specific incentive mechanisms. The research results provide practical evidence for universities in formulating school sports development policies, aiming to build a dynamic, healthy, and sustainable lifestyle within the student community.

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