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Factores Motivacionales para la Práctica de Actividad Física en Estudiantes de Educación Superior

Motivational Factors to Physical Activity among Higher Education Students

Fatores Motivacionais para a Prática de Atividade Física de Estudantes de Ensino Superior

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RESUMEN

Introducción: Los estudiantes universitarios representan un grupo vulnerable a la salud física, mental y social comprometida, adoptando frecuentemente hábitos sedentarios. **Objetivo:** Identificar los aspectos motivacionales que influyen en la participación de estudiantes de pregrado matriculados en una universidad pública brasileña en actividades físicas y deportivas, tanto en el contexto académico como en espacios fuera de la institución. **Materiales y métodos:** 377 estudiantes de ambos sexos, de 18 años o más, fueron seleccionados por conveniencia y estratificados por curso. Se utilizaron cuatro cuestionarios: datos generales, perfil de actividad física y motivación (MPAM-R). **Resultados:** Antes de ingresar a la universidad, el 63,4% de los participantes eran físicamente activos; actualmente, este número ha disminuido al 53,32%. Los compromisos académicos impactan negativamente en la actividad física para el 49,07% de los estudiantes. Con respecto a la salud, el 11,67% reportó mala salud y el 40,85% reportó salud regular. Hubo una correlación positiva significativa entre la actividad física regular y una mejor autopercepción de la salud. La salud fue el principal factor motivador (promedio de 5,82), seguido de la diversión, la apariencia, la competencia y la interacción social. **Conclusiones:** La salud es la principal motivación para la actividad física entre los estudiantes, siendo el factor más relevante en su adherencia.

Palabras clave: motivación, inactividad física, ejercicio físico, salud del estudiante.

ABSTRACT

Introduction: University students represent a group vulnerable to compromised physical, mental, and social health, frequently adopting sedentary habits. **Objective:** To identify the motivational aspects that influence the participation of undergraduate students enrolled in a Brazilian public university in physical and sporting activities, both in the academic context and in spaces outside the institution. **Materials and Methods:** 377 students of both genders, aged 18 or older, were selected by convenience and stratified by course. Four questionnaires were used: general data,

physical activity profile, and motivation (MPAM-R). Results: Before entering university, 63.4% of participants were physically active; currently, this number has dropped to 53.32%. Academic commitments negatively impact physical activity for 49.07% of students. Regarding health, 11.67% reported poor health and 40.85% reported fair health. There was a significant positive correlation between regular physical activity and better self-perception of health. Health was the main motivating factor (average 5.82), followed by Fun, Appearance, Competence, and Social interaction. Conclusions: Health is the main motivation for physical activity among students, being the most relevant factor in their adherence.

Keywords: motivation, physical inactivity, physical exercise, university health.

RESUMO

Introdução: Estudantes universitários representam um grupo vulnerável ao comprometimento da saúde física, mental e social, frequentemente incorporando hábitos sedentários. **Objetivo:** Identificar os aspectos motivacionais que influenciam a participação de estudantes de graduação, matriculados em uma universidade pública brasileira, em atividades físicas e esportivas, tanto no contexto acadêmico quanto em espaços externos à instituição. **Materiais e Métodos:** Participaram 377 estudantes de ambos os gêneros, com 18 anos ou mais, selecionados por conveniência e estratificados por curso. Foram utilizados quatro questionários: dados gerais, perfil de atividade física e motivação (MPAM-R). **Resultados:** Antes do ingresso na universidade, 63,4% dos participantes eram fisicamente ativos; atualmente, esse número caiu para 53,32%. Compromissos acadêmicos impactam negativamente a prática de atividade física para 49,07% dos alunos. Em relação à saúde, 11,67% relataram estado ruim e 40,85%, regular. Houve correlação positiva significativa entre prática regular de atividade física e melhor autopercepção de saúde. O fator Saúde foi o principal motivador (média 5,82), seguido por Diversão, Aparência, Competência e Social. **Conclusões:** A saúde é a principal motivação para a prática de atividade física entre os estudantes, sendo o mais relevante à sua adesão.

Palavras-chave: motivação, inatividade física, exercício físico, saúde do estudante.

INTRODUCTION

Higher education students represent a group particularly susceptible to impairments in their physical, emotional, and social health (Cardoso et al., 2019). The transition to university involves abrupt changes in academic demands, sleep routines, eating habits, and time management, factors that increase stress and reduce opportunities for regular physical activity. These elements may trigger physiological alterations—such as elevated cortisol levels, poorer sleep quality, and increased fatigue—as well as behavioral changes, including reduced engagement in self-care and active leisure. Accordingly, several studies have shown that, especially during the early years of undergraduate education, declines in physical and mental well-being, reductions in physical activity levels, and the emergence of sleep disturbances are common (Perini et al., 2019; Cardoso et al., 2019).

There is evidence that the incidence and severity of psychosocial disorders have increased among university students, resulting in consequences such as difficulty concentrating, poorer emotional regulation, and reduced academic performance (Perini et al., 2019). These effects are partially explained by the interaction among academic overload, sleep deprivation, and sedentary behaviors, which elevate inflammatory markers, increase mental rumination, and lower perceived self-efficacy. In the Brazilian context, Cristo (2023) found that 48.9% of assessed students exhibited signs of psychological distress (including stress, depression, and anxiety). At the same time, a substantial increase in overweight and obesity has been observed among young adults, a pattern often associated with low physical activity levels, inadequate diet, and prolonged sedentary behavior (Melo et al., 2019). Together, these factors create a cycle in which an impaired lifestyle contributes both to poorer health perception and greater psychosocial vulnerability.

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Physical inactivity impacts the release of neurotransmitters such as serotonin and endorphins, which play an essential role in mood regulation and stress response (Marques et al., 2021; Bernal-López et al., 2024; Peña-Muñante et al., 2025). Furthermore, from a psychosocial perspective, the absence of structured physical routines can limit opportunities for social interaction and emotional regulation, increasing the risk of anxiety and depressive symptoms, and reducing self-efficacy and perception of control, affecting psychological well-being (Zhang et al., 2023; Zhang et al., 2024). On the other hand, regular physical activity has been shown to improve sleep quality (Merellano-Navarro et al., 2022), enhance cognitive performance, and promote resilience to academic stressors (Qiu et al., 2025a) and, depending on the intensity, can promote better affective responses, perceptions of autonomy, self-efficacy, intention to be physically active, and more minutes of exercise participation (Andrade et al., 2024), contributing to mental health and overall well-being among university students (Mahindru et al., 2023; Malagodi et al., 2024).

The continuous practice of physical activity (PA) is associated with numerous benefits, including improved body composition, prevention of risk factors, and treatment of non-communicable chronic diseases (NCDs). It also has a positive impact on emotional and social aspects, such as the reduction of stress, anxiety, and depression (Schuch et al., 2018). However, according to Cardoso et al. (2019), longitudinal studies show that university students tend to decrease their physical activity levels over the course of their degree programs due to academic demands and everyday stress, posing challenges to the promotion of PA in this population.

In this context, Aro et al. (2018) emphasize that maintaining adequate levels of PA becomes more feasible when individuals find motivation to engage in such practices. Motivation acts as a driving force that directs, initiates, and sustains active behavior. For Weinberg and Gould (2017), motivation is essential to personal development as it encourages the pursuit of learning and performance goals. Therefore, it is understood that motivation plays a central role in the decision to initiate and maintain regular PA (Marcos-Pardo et al., 2018).

The word motivation originates from the Latin *motivus*, *movere*, meaning to move, in the sense of a cause that sets in motion or that which causes to move, and can be defined as an impulse for action (Ryan & Deci, 2000). Therefore, any discussion surrounding the word motivation implies investigating the motives that influence human behavior.

Motivation is an intentional action, directed toward a goal and regulated by the interaction between variables of psychological, interpersonal, social, environmental, health, and physical dimensions (Ryan & Deci, 2017; Marcos-Pardo et al., 2018). Paula et al. (2019) point to pleasure, challenge, affiliation, and staying healthy as the main motivational factors for PA. Thus, PA behavior is considered occasion-motivated behavior, which can vary according to the individual's needs, ambitions, and obligations.

From this perspective, motivation helps explain the reasons that drive or discourage university students from engaging in physical activity. It can be influenced by a variety of factors, which vary according to individuals' personal goals, previous experiences, sociodemographic characteristics, and the context in which they are inserted (Aro et al., 2018; Weinberg & Gould, 2017).

Given this scenario, understanding the factors that drive motivation is essential for developing more effective strategies for promoting health among university students, especially concerning the encouragement of regular physical practices and the consolidation of healthier lifestyles. Furthermore, Matias et al. (2019) highlight the lack of Brazilian studies exploring motivational determinants for adopting active lifestyles among young adults, reinforcing the importance of research on this topic.

In this context and considering the gaps still present in the national scientific literature, a study aimed at identifying the motivational aspects that influence the participation of undergraduate students enrolled in a Brazilian public university in physical and sports activities—both within the academic environment and in external settings—is justified. It is expected that the findings of this research will contribute significantly to advancing knowledge in the field of sport psychology, providing support for the development of initiatives that promote the initiation and maintenance of physical activity, as well as informing policies aimed at improving student well-being.

MATERIALS AND METHOD

Research Project

This is an original, field, cross-sectional, descriptive-correlational study (by describing characteristics of a population, while seeking to verify whether there is a statistical relationship between two or more variables), survey (by applying standardized questionnaires and validated instruments), with a quantitative approach (Thomas et al., 2023).

Participants

The sample was defined through proportional stratification (Silva et al., 2021, Chapter 11). The objective was to obtain a representative sample of the target population and to ensure that the relevant segments of this population were proportionally included and preserved. In this case, the target population comprised young adults aged between 18 and 35 years.

A total of 377 undergraduate students participated in the study. Participants were selected through stratified sampling. Stratification was based on a prior survey of students enrolled in on-campus undergraduate programs ($n = 10,023$), followed by the determination of a key percentage of students per program (3%). Therefore, proportional sampling was conducted according to the number of students in each of the 39 undergraduate programs, with an initial sample size expectation of 301 students. However, the final sample comprised 377 students recruited via social media — approximately 3.8% of the total number of students with active enrollment on campus. Considering a 95% confidence level and a worst-case scenario ($p = 0.5$), the sampling error was estimated at $\pm 4.95\%$. This level of precision is considered adequate for population-based surveys in educational and health contexts (Bhardwaj et al., 2024; Sadiq et al., 2025).

The following inclusion criteria were adopted for sample selection and determination: (I) the student had to be regularly enrolled in an on-campus undergraduate program; (II) be 18 years of age or older; and (III) agree to participate in the study voluntarily. Below, Table 1 presents the sample's characteristics based on key variables of interest, such as gender, course completion percentage, family income, among others.

Table 1

Sample characteristics.

Variable	Frequency	%
Sex		
Female	252	66.84%
Male	125	33.16%
Percentage completed of the course		
Up to 25%	88	23.34%
Between 25% and 50%	104	27.59%
Between 50 and 75%	82	21.75%
More than 75%	103	27.32%
Exercising paid activity		
Does not work	194	51.46%
Formal work	42	11.14%
Research grants	46	12.20%
Internship	56	14.85%
Informal work	39	10.34%
Approximate family income (Minimum wage: R\$ 1,100.00)		
Less than 1 minimum wage	52	13.79%
Between 1 and 2 minimum wages	139	36.87%
Between 2 and 3 minimum wages	73	19.36%
Between 3 and 4 minimum wages	37	9.81%
More than 4 minimum wages	76	20.16%
Total	377	100%

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Materials/Instruments

In this study, four instruments were used: (i) a General Information Questionnaire, which included questions regarding the participants' personal and academic information; (ii) a Questionnaire on Physical Activity Practice Profile; and (iii) the Motivation for Physical Activity Measure – Revised (MPAM-R).

The general information questionnaire (semi-structured) has its final version with 14 items, with questions about sociodemographic profile (age, sex, undergraduate course, whether they perform paid work, approximate income, and others). The physical activity practice profile questionnaire (semi-structured) contains 10 questions, aiming to identify the level of physical activity practice of students before entering university, before the Covid-19 pandemic, current physical activity practice, as well as the frequency and intensity of this practice and current health status (self-reported). Both instruments were developed by the authors of the study, based on previous research and considering sociodemographic factors commonly associated with physical activity participation, as evidenced in the literature (Weinberg & Gould, 2017; Vieira & Silva, 2019; Perini et al., 2019; Borges & Souza, 2024).

The MPAM-R aims to assess the primary reasons why individuals—whether athletes or not, of different ages and genders—engage in physical activity. This instrument evaluates five motivational dimensions: enjoyment, competence, physical appearance, health, and social interaction. The original version of the scale (MPAM) was developed by Frederick and Ryan in 1993 and was later culturally adapted to the Brazilian context by Gonçalves and Alchieri (2010).

The Portuguese version of the MPAM-R consists of 30 items. The Cronbach's alpha values for each factor were 0.88, 0.85, 0.79, 0.84, and 0.75, respectively. Participants responded to the introductory statement "I engage in physical activity..." by completing it with the scale statements, which are evaluated using a seven-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The motivational score is defined based on the mean score for each item on the scale (Gonçalves & Alchieri, 2010). The higher the final value, the greater the influence of that factor on the individual's decision-making process regarding physical activity, both before and during participation.

It is important to emphasize that all participants were previously informed about the collection procedures and signed an informed consent form, explaining how voluntariness and confidentiality were guaranteed. The study complies with Resolution No. 466 of the National Health Council and the Declaration of Helsinki, revised in October 2000 (WMA 2000; Bošnjak, 2001; Tyebkhan, 2003), and with the Standards of Ethics in Research in Sports and Exercise Sciences (Harriss et al., 2019). The study was previously submitted to the Research Ethics Committee of the National Research Ethics Commission (CEP-CONEP), being evaluated by Iguacu University - UNIG (Rio de Janeiro, Brazil), CAAE 56169921.3.0000.8044, and approved under opinion number 5,291,657. The study adhered to the provisions of Organic Law 3/2018, of December 5, on the Protection of Personal Data and Guarantee of Digital Rights, ensuring compliance with data protection standards.

Statistical Analysis

In addition to descriptive statistics—mean, standard deviation (SD), and percentage frequency (F, %) — the Kolmogorov test was used to verify the normal distribution of the data. In this regard, it was found that the data do not follow a normal distribution (sig 0.000). The chi-square test and the Mann-Whitney U test for independent samples were used as parametric comparative analyses of the means ($p \leq 0.05$).

A simple linear regression was conducted to assess the relationship between self-reported health status (dependent variable) and current physical activity (independent variable). The regression model was fitted to examine whether physical activity could predict self-reported health status. The model was evaluated using the coefficient of determination (R^2), with the R^2 value indicating the proportion of variance in health status explained by physical activity. The significance of the model was tested using the F-test, and the regression coefficients were interpreted to assess the impact of the predictor variable on the dependent variable. To test the assumptions of the regression, multicollinearity (VIF) and influence from extreme cases (Cook's D) were checked. All analyses were performed using SPSS© 26.0 for Windows®.

RESULTS

The selected sample had a mean age of 24.29±6.44 years, with a mean height of 167.18cm±8.91cm, body mass of 69.37kg±16.22kg, and a Body Mass Index (BMI) of 24.78±5.36. Regarding BMI classification, 32 students were classified as underweight, 192 as normal weight, 101 as overweight, 48 as obese, and 4 as severely obese. Concerning the physical activity profile of this group, 239 (63.4%) students reported engaging in physical activity before entering higher education. Currently, the number of physically active students is 201 (53.32%). A recent study by Santos et al. (2020) reported an increase in physical inactivity among higher education students from the beginning of their undergraduate studies to the end of the second year. Notably, 51 students reported starting regular physical activity after the COVID-19 pandemic was declared in 2020.

Moreover, when asked about weekly engagement in physical activity, only 68 (18.4%) students reported meeting the minimum recommendation by the World Health Organization (WHO, 2020), i.e., more than 150 minutes per week of moderate activity. In this regard, recent studies show that the majority of university students do not meet the minimum physical activity recommendations (Roberts et al., 2024). Therefore, considering the number of insufficiently active individuals—those who engage in physical activity regularly but not for the recommended duration—and those who reported not engaging in physical activity at all, it was found that for 79.4% of them, the COVID-19 pandemic significantly impacted their time dedicated to physical activity. This was also demonstrated by the study of Haus et al. (2022), in which approximately 17% of the 253 students interviewed discontinued physical activity during the pandemic.

Regarding academic obligations and extracurricular commitments, 49.07% of respondents indicated that these factors directly affect the time available for weekly physical activity. This suggests that the overload of tasks—between studies, internships, and work—contributes to reduced physical activity time, promoting sedentary behavior among higher education students (Cardoso et al., 2019). These data are presented in Table 2.

As shown in Table 2, 44.1% of students who are currently physically inactive stated that their academic activities and commitments greatly impact their adherence to regular physical exercise. Among those who do not meet the recommended minimum for regular practice, 23 (14.74%) reported a moderate impact, 33 (21.15%) reported a slight impact, and 79 (50.64%) reported a significant impact. Supporting these findings, recent studies have shown that increased class hours and academic pressure can reduce physical activity levels, meaning academic obligations can greatly impact students' physical activity levels (Magalhães et al., 2025). Additionally, the lack of free time and the need to prioritize academic demands often lead students to deprioritize physical exercise, which can negatively affect both their physical and mental health (Caspersen et al., 1985).

Table 2

Impact of academic commitments and activities on weekly physical activity among higher education students.

VARIABLES		Impact of academic commitments and activities on weekly physical activity time					Total
		No impact/had an impact	Little impact	Reasonably impacted	Some impact	A lot of impact	
Time spent weekly practicing physical activity	I don't practice	24 64.9%	9 33.3%	19 30.2%	20 30.8%	82 44.1%	154 40.7%
	Up to 50 minutes	1 2.7%	4 14.8%	6 9.5%	12 18.5%	26 14.0%	49 13.0%
	Between 51 minutes and 150 minutes	7 18.9%	9 33.3%	17 27.0%	21 32.3%	53 28.5%	107 28.3%
	Between 151 minutes and 250 minutes	1 2.7%	4 14.8%	15 23.8%	6 9.2%	14 7.5%	40 10.6%
	More than 251 minutes	4 10.8%	1 3.7%	6 9.5%	6 9.2%	11 5.9%	28 7.4%
Total	37 100.0%	27 100.0%	63 100.0%	65 100.0%	186 100.0%	378 100.0%	

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Table 3 presents the association between physical activity engagement before entering higher education and current physical activity engagement. According to this analysis, 95 (39.7%) of the respondents discontinued their regular physical activity, with 81 having been inactive before and continuing to be inactive. Furthermore, only 60% of those who were regularly active before remained physically active, while only 41.3% of previously inactive students started practicing physical activity after entering higher education ($p < 0.01$).

Table 3

Association between students who practiced physical activity before entering higher education and those currently practicing physical activity.

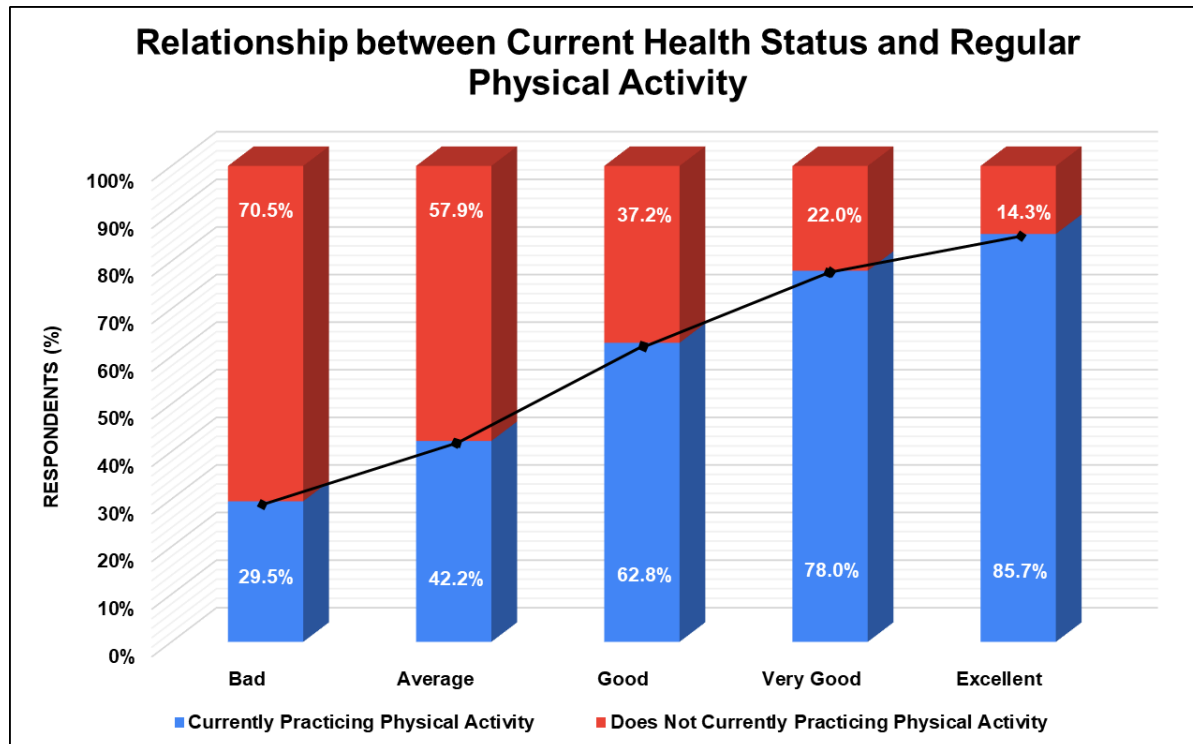
Variables	Practiced physical activity before entering university		Total	
	Yes	No		
Currently practice physical activity	Yes	144 (60.3%)	57 (41.3%)	201 (53.3%)
	No	95 (39.7%)	81 (58.7%)	176 (46.7%)
Total		239 (100%)	138 (100%)	377 (100%)

One of the questions in the Physical Activity Practice Profile Questionnaire (developed by the author) asked respondents to self-report their current health status. In this regard, 44 (11.67%) students rated their health as poor, 154 (40.85%) as fair, 113 (29.97%) as good, 59 (15.65%) as very good, and only 7 (1.86%) rated it as excellent.

Based on this, the relationship between respondents' current health status and current regular physical activity was examined. A graphical representation of this relationship is presented in Figure 1. From this perspective, a significant association ($p = 0.01$) between these two variables was identified, showing that regular physical activity is associated with a better self-perceived health status.

Figure 1

Relationship between current health status and regular physical activity practice.



According to the existing literature, adopting healthy habits, such as regular physical activity, results in better health and quality of life (Schuch et al., 2018). However, despite increased dissemination of knowledge about the physiological and psychological benefits, the general population still exhibits low adherence to regular physical activity (Brazil, 2019). In this context, understanding the motivations behind engagement in physical activity can help promote health in this population. Table 4 presents the MPAM-R results for the motivational factors in the sample.

Table 4

MPAM-R results.

Motivational Factors		Mean	Standard Deviation
Factor I	Enjoyment	5.18	1.56
Factor II	Competence	4.62	1.50
Factor III	Appearance	4.79	1.28
Factor IV	Health	5.82	1.01
Factor V	Social	3.27	1.39

As a specific objective of this investigation, comparative tests were performed between the MPAM-R results and the participants' sociodemographic variables to better clarify aspects related to motivation for physical activity. The selected variables were Gender (Table 5); and whether the participant holds a paid job (Table 6). These were chosen based on the existing literature, which identifies these factors as influential in the motivation for regular physical activity (Weinberg & Gould, 2017; Nascimento et al., 2019).

Table 5

Comparison of Motivational Factors by Gender.

Motivational Factors	Sex	Frequency	Mean	SD	P value
Enjoyment	Female	252	4.995	1.645	.002*
	Male	125	5.541	1.312	
Health	Female	252	5.783	1.031	.372
	Male	125	5.883	0.974	
Competence	Female	252	4.443	1.525	.002*
	Male	125	4.976	1.382	
Appearance	Female	252	4.781	1.248	.552
	Male	125	4.815	1.358	
Social	Female	252	3.052	1.392	.000*
	Male	125	3.720	1.266	

SD = Standard Derivation; * $p \leq 0,05$

The results presented in Table 6 show that individuals who do not engage in paid employment are more motivated by Competence and Enjoyment, reflecting a more intrinsically motivated profile. In these cases, motivation driven by Enjoyment and Competence may be related to leisure moments, unsupervised practice, and informal spaces (e.g., public squares), rather than structured training, as the activity lacks consistency.

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Table 6

Comparison of Motivational Factors by Paid Employment Status.

Motivational Factors	Paid employment	Frequency	Mean	SD	P value
Enjoyment	No	194	5.371	1.477	.014*
	Yes	183	4.969	1.626	
Health	No	194	5.853	1.012	.425
	Yes	183	5.778	1.013	
Competence	No	194	4.795	1.453	.019*
	Yes	183	4.435	1.527	
Appearance	No	194	4.869	1.283	.219
	Yes	183	4.712	1.283	
Social	No	194	3.365	1.422	.183
	Yes	183	3.176	1.344	

SD = Standard Derivation; * $p \leq 0,05$

Table 7 reveals motivational differences between those who practice regular physical activity and those who do not. There are statistically significant differences ($p \leq 0.05$) for the motivational factors of Enjoyment, Health, Competence, and Appearance.

Table 7

Comparison of Motivational Factors by regular practice of physical activity.

Motivational Factors	Regular practice of physical activity	Frequency	Mean	SD	P value
Enjoyment	Yes	201	5.610	1.332	.000*
	No	176	4.679	1.658	
Health	Yes	201	6.020	0.853	.000*
	No	176	5.584	1.126	
Competence	Yes	201	4.996	1.434	.000*
	No	176	4.191	1.458	
Appearance	Yes	201	4.902	1.318	.042*
	No	176	4.667	1.234	
Social	Yes	201	3.356	1.420	.224
	No	176	3.178	1.344	

SD = Standard Derivation; * $p \leq 0.05$

A multiple linear regression using the backward method was conducted to identify predictors of perceived health status (Table 8). The initial model included ten independent variables, namely: age, sex, BMI, percentage of graduation, paid employment, receipt of university scholarship, family income, participation in a research group, and regular physical activity. After six steps, the final model retained four predictors and showed a significant fit ($F(4, 372) = 14.918, p < 0.001$), explaining 13.8% of the variance in the outcome ($R^2 = 0.138$; adjusted $R^2 = 0.129$). In the final model, BMI interpretation ($\beta = -0.151, p = 0.012$) and current physical activity level ($\beta = -0.289, p < 0.001$) were significant predictors of health status. Sex and receipt of a scholarship (e.g., scientific initiation or teaching initiation) remained in the model but were not statistically significant ($p > 0.05$). These findings indicate that higher BMI classification and lower physical activity levels are associated with poorer health perception among participants.

Table 8

Final backward regression model predicting Current health status.

Predictor	B	SE	Beta	t	P value
Constant	3.171	0.328	–	9.674	<0.001
Sex	0.172	0.098	0.085	1.754	0.080
BMI	-0.168	0.054	-0.151	-3.138	0.012
Receipt of scholarship	0.205	0.119	0.082	1.726	0.092
Regular physical activity	-0.551	0.093	-0.289	-5.902	<0.001

A multiple linear regression analysis using the backward elimination method was performed to identify predictors of regular physical activity (Table 9). The initial model included the same ten independent variables mentioned earlier, with the adjustment of replacing the variable "regular physical activity" with "current health status". Non-significant predictors were progressively removed until reaching the final model (Model 8), which demonstrated the best balance between parsimony and predictive capacity. In the final model, sex, participation in a research group, and current health status remained as independent predictors of current physical activity. The model explained a significant portion of the variance (ANOVA: $p < 0.001$). Current health status was the strongest predictor ($B = -0.157$; $\beta = -0.299$; $p < 0.001$), indicating that poorer perceived health was associated with lower physical activity levels. Sex also significantly predicted physical activity ($B = -0.111$; $\beta = -0.105$; $p = 0.033$), with females showing lower levels of activity. The variable research group approached statistical significance ($B = -0.109$; $\beta = -0.091$; $p = 0.061$), suggesting a borderline trend.

Table 9

Final backward regression model predicting regular physical activity.

Predictor	B	SE	Beta	t	P value
Constant	2.210	0.138	—	16.018	<0.001
Sex	-0.111	0.052	-0.105	-2.143	0.033
Research group	-0.109	0.058	-0.091	-1.876	0.061
Current health status	-0.157	0.026	-0.299	-6.093	<0.001

DISCUSSION

Based on the data analysis, "Health" and "Enjoyment" were the motivational factors with the highest mean scores. This emphasis on "health" and "enjoyment" dimensions may reflect increased student awareness of the benefits of physical activity for quality of life, as well as the recognition of exercise as a pleasurable form of self-care for both body and mind (Borges & Souza, 2024). Interestingly, unlike this study, other research involving youth and adults has identified "Enjoyment" as the most relevant factor for engagement in sports activities (Apolinário et al., 2019; Paula et al., 2019).

It is worth noting that the "Enjoyment" factor is considered an intrinsic motivation, as it represents engagement in an activity due to the personal satisfaction it provides, and is also linked to higher adherence and commitment. The greater the intrinsic motivation for physical activity, the greater the time dedicated to physical activity (Zhong & Wang, 2019; Esmaeilzadeh et al., 2022). Also in this category is the "Competence" factor, which involves the pursuit of self-improvement and learning. Conversely, the "Health," "Appearance," and "Social" factors are considered extrinsic motivations, as they are related to external rewards such as aesthetic outcomes or social recognition (Ryan et al., 1997; Balbinotti & Capozzoli, 2008; Ryan & Deci, 2000).

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In this study, the “Social” factor had the lowest mean motivation score, even below the general average of the scale (3.5 points). Of note is the “Appearance” factor, which, although not the most relevant, showed significant influence. As some authors suggest, the pursuit of aesthetic standards—such as thinness or muscular definition—can be an important motivator, even if not the primary one. This becomes more concerning when physical appearance is mistakenly equated with health, potentially leading to conceptual misunderstandings and influencing physical activity behavior, especially since “Health” was the most motivating factor in this research (Castro et al., 2010; Borges Rocha Samp Pedro et al., 2014). Thus, it is important to contextualize motivational factors such as “Competence” and “Appearance,” which may be strongly associated with social pressure to conform to bodily ideals, reflecting external and cultural influences on individuals’ self-image (Baldo, 2015).

Consistent with the findings of the present study, Borges et al. (2021) identified similar results when investigating motivational factors in young adult resistance training practitioners. In that case, “Health” had the highest mean and “Social” the lowest. In another study conducted by Borges and Souza (2024), the authors examined motivational differences in exercise among university students, also using MPAM-R results. Among the main findings, “Enjoyment” had the highest influence, followed by “Health,” “Competence,” “Appearance,” and “Social.”

As observed, the factors Enjoyment, Competence, and Social have a greater influence on men’s engagement in physical activity (PA) than on women’s. The literature suggests that men are more motivated by intrinsic factors than women, such as Enjoyment and Competence (Egli et al., 2011). The study by Durán-Vinagre, Feu, and Sánchez-Herrera (2024) also used the MPAM-R to assess the reasons for physical activity among Spanish university students. The findings include significant differences in the dimensions of Fun, Competence, and Social, favoring men. This result is similar to that found in this study (Table 5).

Another point to consider is that men are more inclined toward group-based PA (Social Factor) and competitive activities than women (Salles-Costa et al., 2003). On the other hand, the Health and Appearance factors did not show statistically significant differences. This relationship can be explained by the historical construction and representation of male bodies in more competitive practices, such as soccer and combat sports. For example, soccer, considered the most popular and widely practiced sport in Brazil, is deeply intertwined with gender issues. Notably, women’s soccer in Brazil was only formally regulated in the 1980s (Goellner, 2021; Kestelman et al., 2022), which may influence the types of activities sought during leisure time.

Another relevant observation concerns the proportion of physically active men and women. In the present study, 48.4% of women reported being physically active, compared to 63.2% of men. This indicates a statistically significant association between gender and current physical activity ($p = 0.007$). Furthermore, in the regression performed, the variable sex was also a significant predictor of physical activity ($B = -0.111$; $\beta = -0.105$; $p = 0.033$), with women showing lower levels of regular physical activity. Similar results were observed in recent studies with university students, who also reported higher levels of moderate and vigorous activity among men than among women (Espada et al., 2023; Edelman et al., 2022).

Finally, Zhao et al. (2023) show that exercise-related motivation, climate, and self-efficacy are strongly interconnected, demonstrating that motivation plays a key predictor of exercise behavior. Thus, engagement in physical activity among undergraduate students is influenced by both the motivational environment and their level of confidence in their own ability to exercise.

Exploring the results presented in Table 7, it can be observed that higher education students who regularly engage in physical activity report greater motivation in the pleasure and competence factors, which is consistent with the motivational profiles described in recent research. Studies have shown that intrinsic motives, such as pleasure, challenge, and perceived competence, are associated with greater adherence and persistence in exercise practice, which helps explain why active students score higher in these dimensions (Valenzuela et al., 2021). Groups characterized by intrinsic motivation also tend to experience greater satisfaction of basic psychological needs, which reinforces long-term engagement in physical activity.

The higher scores observed in health and appearance among active students also align with the literature. Health-oriented motives often function as identified regulation, which is a more autonomous form of motivation that

facilitates the adoption of healthy behaviors. In contrast, appearance-related motives represent more controlled forms of regulation that can sustain exercise in the short term and, when integrated into personal goals, contribute to long-term adherence (Sáez et al., 2021). Regular physical activity has also been shown to produce measurable improvements in cardiorespiratory fitness, body composition, and body image, which increase self-efficacy and the perception of progress, thereby reinforcing both health and aesthetic motivations (Sáez et al., 2021; Qiu et al., 2025b).

From a theoretical and practical perspective, the combination of intrinsic motives such as enjoyment and competence with instrumental motives such as health and appearance helps explain not only the initiation but also the maintenance of exercise behavior. Pleasure provides an immediate sense of reinforcement, competence enhances the perception of progress and goal attainment, and tangible improvements in health and appearance consolidate satisfaction with the results achieved. Interventions that enhance the experience of enjoyment and perceived competence, such as those based on the Self-Determination Theory, tend to improve long-term exercise adherence. Additionally, programs that generate measurable improvements in fitness and body image can strengthen goal satisfaction and reinforce the intention to maintain regular physical activity (Wang et al., 2024b; Zhou et al., 2025).

It is worth noting that, as shown in Figure 1 and Tables 8 and 9, regular physical activity is strongly associated with self-perceived health status. Supporting this discussion, Couto et al. (2019) found that insufficiently active students reported lower quality of life in the physical and psychological domains compared to physically active students ($p < 0.05$). Along similar lines, Ferreira et al. (2022) identified a high prevalence of negative self-rated health among university students, highlighting the association between risk behaviors and lower levels of physical activity.

Other studies have also linked higher levels of physical activity to better self-perceived health. This association is consistent with findings from previous research conducted in various populations across different countries, age groups, and educational levels, collectively supporting the idea that physical activity influences health perception throughout the life course (Denche-Zamorano et al., 2022; Padilla-Moledo et al., 2020; Alkhaldeh et al., 2021; Cui et al., 2021; Alkhaldeh et al., 2024).

Another factor highlighted in Table 8 was the association between BMI and self-rated health. The study published by Fares, Al Tabosh, Saadeddin, and El Mouhayyar (2016) revealed that university students are at greater risk of developing obesity, physical inactivity, and hypertension compared with the general population. In this regard, Faria et al. (2023) identified a high prevalence of overweight and obesity among Brazilian university students, with significant correlations between BMI and health conditions such as the presence of comorbidities. Conversely, regular physical activity promotes multiple and varied benefits, such as improvements in body composition, prevention of risk factors, and support in the treatment of NCDs and psychosocial disorders (Schuch et al., 2018).

In order to increase the levels of physical activity among university students and mitigate the negative effects of physical inactivity on university health, it is important that universities encourage physical activity among students through initiatives such as offering exercise classes and programs, outdoor physical activities, digital resources (apps/online resources), and psychosocial support. In this regard, recent reviews and institutional mapping studies show that in-person and digital interventions based on physical activity are often effective in improving the mental health and well-being of university students (Donnelly et al., 2024; Malagodi et al., 2024; Wang et al., 2024a).

Limitations

Although the sample size ($n = 377$) was adequate for a cross-sectional design, the study's main limitation lies in its representativeness, as data were collected exclusively from students of a single public university. Consequently, the findings may not fully reflect the motivational patterns of students from other higher education institutions with different social, cultural, or academic contexts. Additionally, the use of self-report instruments may be subject to memory biases or social desirability, and the cross-sectional nature of the study does not allow for establishing

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temporal or causal inferences. Observed associations may reflect reverse causality or residual confounding; longitudinal studies are needed to assess causal relationships.

Future directions

Future research should aim to include multicenter samples encompassing public and private universities from different regions of Brazil to enhance representativeness and external validity. Longitudinal designs are recommended to examine changes in motivational factors over time and their predictive value for adherence to physical activity. It is also suggested that future investigations incorporate psychosocial variables, such as self-efficacy, perceived stress, and motivational climate, to deepen the understanding of the mechanisms underlying exercise engagement among university students.

FINAL CONSIDERATIONS

The present study identified Health and Enjoyment as the most influential motivational factors for engagement in physical and sports activities among undergraduate students, while Social was the least relevant. These findings suggest that students primarily view physical activity as a means of promoting health and psychological well-being rather than as a social practice. The results also highlight gender-based differences, with men showing greater motivation driven by enjoyment and competence. Overall, the study underscores the importance of developing university-based programs and interventions that strengthen intrinsic motivation, promote self-efficacy, and provide supportive environments for regular physical activity, thereby contributing to the improvement of students' overall health and quality of life.

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