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Promoting healthy lifestyles through physical fitness mobile applications among student-athletes

Promoción de estilos de vida saludables a través de aplicaciones móviles de aptitud física en estudiantes deportistas

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Abstract

In recent years, mobile fitness applications have emerged as accessible tools that support physical activity and health behavior change. This study aimed to determine the relationship between exposure to physical fitness mobile applications and the motivation of student-athletes to maintain a healthy lifestyle. A descriptive-correlational research design was employed, involving 86 student-athletes from Batangas State University The National Engineering University, JPLPC-Malvar Campus, during the academic year 2024–2025. Data were collected through a validated questionnaire assessing both app usage and motivation (intrinsic and extrinsic), complemented by physical fitness observations. Descriptive statistics and Pearson's correlation coefficient were used to analyze the data. Results showed that the respondents were moderately exposed to fitness mobile applications (M = 3.10), and exhibited high levels of intrinsic (M = 3.81) and moderate extrinsic (M = 3.38) motivation. A statistically significant and strong positive relationship (r = 0.614, p = 0.000) was found between app exposure and motivation. The findings suggest that increased engagement with fitness apps contributes to higher motivation for adopting and maintaining a healthy lifestyle. The study highlights the value of integrating mobile fitness technology into athletic training and wellness programs to reinforce motivation and health behaviors among student-athletes.

Keywords: physical fitness, mobile applications, student-athletes, motivation, healthy lifestyle

Resumen

En los últimos años, las aplicaciones móviles de fitness han surgido como herramientas accesibles que apoyan la actividad física y el cambio de comportamiento hacia la salud. Este estudio tuvo como objetivo determinar la relación entre la exposición a aplicaciones móviles de fitness físico y la motivación de los estudiantes-atletas para mantener un estilo de vida saludable. Se empleó un diseño de investigación descriptivo-correlacional, con la participación de 86 estudiantes-atletas de la Universidad Estatal de Batangas, La Universidad Nacional de Ingeniería, Campus JPLPC-Malvar, durante el año académico 2024–2025. Los datos fueron recolectados mediante un cuestionario validado que evaluaba tanto el uso de las aplicaciones como la motivación (intrínseca y extrínseca), complementado con observaciones de condición física. Se utilizaron estadísticas descriptivas y el coeficiente de correlación de Pearson para analizar los datos. Los resultados mostraron que los participantes estaban moderadamente expuestos a aplicaciones móviles de fitness (M = 3.10) y presentaban altos niveles de motivación intrínseca (M = 3.81) y motivación extrínseca moderada (M = 3.38). Se encontró una relación positiva, estadísticamente significativa y fuerte (r = 0.614, p = 0.000) entre la exposición a las aplicaciones y la motivación. Los hallazgos sugieren que un mayor uso de las aplicaciones de fitness contribuye a una mayor motivación para adoptar y mantener un estilo de vida saludable. El estudio resalta el valor de integrar la tecnología móvil de fitness en los programas de entrenamiento atlético y bienestar para reforzar la motivación y los comportamientos saludables entre los estudiantes-atletas.

Palabras clave: condición física, aplicaciones móviles, estudiantes-atletas, motivación, estilo de vida saludable

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Introduction

Physical inactivity is a pressing global public health concern that significantly contributes to the increasing incidence of chronic health conditions such as obesity, cardiovascular disease, and metabolic disorders. To mitigate these risks, various strategies have been introduced, including the integration of mobile technologies that promote active and health-conscious lifestyles. Among these, mobile fitness applications have emerged as accessible, user-friendly tools that particularly resonate with younger populations, such as university students (Al-Nawaiseh et al., 2022).

For adults aged 18–64, including those in higher education, the World Health Organization (2020) recommends engaging in at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic physical activity per week. However, studies have shown that many university students fall short of these standards due to academic pressures, increasingly sedentary routines, and limited access to physical activity resources (Chaput et al., 2020). This alarming trend contributes to what has been described as the "physical inactivity pandemic," a global shift characterized by widespread declines in physical movement and exercise across diverse age groups (García-Pérez-de-Sevilla & Sánchez-Pinto, 2022).

Physical fitness, defined as the ability to perform daily tasks and athletic activities with optimal energy and minimal fatigue, is essential for both health and performance. Achieving this state requires a balance of consistent physical activity, proper nutrition, and sufficient rest (Benlidayı, 2024). Additionally, the efficient functioning of physiological systems plays a crucial role in sustaining overall well-being and athletic competence (Akkase et al., 2024).

One of the most influential psychological factors in promoting and sustaining physical activity is motivation. It serves as the internal drive that directs behavior toward achieving specific health and performance goals (Morouço et al., 2024). Motivation arises from a complex interaction of biological, emotional, cognitive, and social influences, and it is reinforced through goal-setting, task engagement, and a sense of achievement—all of which are vital for forming sustainable health habits (Ventura et al., 2024).

In response to the need for effective and personalized motivational strategies, mobile fitness applications have become prominent tools that support users in planning,

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tracking, and evaluating their physical activity. These apps often incorporate features such as real-time feedback, guided workouts, reminders, and goal-setting functions, which strengthen both intrinsic and extrinsic motivational factors (Southcott & Jooste, 2023). In university settings—particularly among student-athletes and future educators—such digital tools can play a critical role in promoting discipline, accountability, and long-term wellness habits.

Moreover, mobile-based platforms have demonstrated effectiveness in educational environments by fostering interactive learning, peer collaboration, and self-regulation through cloud-based systems (Behera, 2023). When extended to fitness and sports training, these technologies offer scalable and adaptable approaches to support physical engagement, especially among student-athletes managing dual academic and athletic responsibilities.

At Batangas State University The National Engineering University, JPLPC-Malvar Campus, student-athletes face the constant challenge of balancing academic workload and sports performance. In this context, mobile fitness applications can serve as valuable tools for maintaining conditioning, promoting consistency, and sustaining motivation, even in the face of time limitations and external stressors.

This study investigates the relationship between student-athletes' exposure to physical fitness mobile applications and their motivation to maintain a healthy lifestyle. Specifically, it explores how these digital tools influence both intrinsic and extrinsic motivational factors that encourage sustained engagement in physical activity. The results aim to inform the development of evidence-based, technology-driven strategies for health promotion and athletic training in higher education institutions, contributing to the broader discourse on digital wellness interventions.

Physical Inactivity and Its Health Implications

Physical inactivity has been widely recognized as a major risk factor contributing to the development of non-communicable diseases (NCDs) and increased rates of premature mortality worldwide. The lack of sufficient physical activity negatively impacts multiple physiological systems, raising the likelihood of chronic conditions such as cardiovascular disease, obesity, metabolic syndrome, and type 2 diabetes (García-

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Pérez-de-Sevilla & Sánchez-Pinto, 2022). According to the World Health Organization (2020), more than 80% of adolescents globally do not meet the recommended minimum of 60 minutes of moderate to vigorous physical activity per day for individuals aged 5–17 years. This alarming trend underscores the growing burden of inactivity-related health problems, especially among younger populations.

In the context of higher education, physical inactivity is a mounting concern, as university students often experience a decline in physical activity due to increased academic responsibilities, social distractions, and reduced participation in organized physical activities. Among these students, student-athletes—despite their traditionally active lifestyles—are not immune to inactivity-related risks. During academic off-seasons or exceptional circumstances such as the COVID-19 pandemic, many student-athletes experienced disruptions in their training routines and limited access to fitness facilities, leading to reduced physical engagement (Alarcón Meza & Hall-López, 2021). These interruptions not only affect physical conditioning but also pose mental health challenges due to the loss of routine, structure, and social interaction associated with athletic participation.

Given these concerns, there is a growing need for interventions that can promote and sustain physical activity among student-athletes, even in the absence of formal team training or physical education classes. Integrating health-promoting technologies, such as mobile fitness applications, may offer innovative solutions to mitigate inactivity and support the physical and psychological well-being of this population. Encouraging regular physical activity outside structured environments is essential to fostering lifelong health habits and preventing the onset of chronic illnesses.

Mobile Fitness Applications as Tools for Health Promotion

The widespread use of smartphones has revolutionized how individuals access health-related information and manage personal wellness. One of the most notable developments in this area is the emergence of mobile fitness applications (apps), which provide users with structured workout plans, real-time progress tracking, goal-setting mechanisms, and motivational prompts. These features are designed to encourage consistent physical activity and promote long-term health behavior change. With their

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ease of access, personalization, and interactive design, mobile fitness apps present a cost-effective and scalable strategy for encouraging physical activity across diverse populations (Sah, 2024).

Mobile apps can be particularly effective because they integrate behavioral change techniques, including reminders, gamification elements, social comparison features, and positive reinforcement. These tools help users form exercise habits, monitor their physical activity levels, and stay motivated over time (Di Martino et al., 2024). The ability to tailor workouts based on individual fitness levels, preferences, and goals enhances user engagement and promotes adherence.

In educational settings, mobile apps have been shown to support students' efforts in achieving a healthier lifestyle. Damaševičius et al. (2022), reported that pre-service teachers who regularly used fitness applications showed increased frequency of physical activity and a stronger commitment to maintaining a healthy routine. These findings highlight the potential of mobile technologies not only as fitness aids but also as educational tools that build awareness and responsibility for health-related decisions.

For student-athletes, the use of fitness apps offers an added layer of support, especially during off-season periods or when access to formal training facilities is restricted. These applications can supplement structured training regimens by allowing athletes to maintain conditioning independently and flexibly. They also serve as valuable tools for self-monitoring and goal reinforcement, which are essential for athletic development and injury prevention. As such, mobile fitness apps may serve as practical, evidence-informed interventions that empower student-athletes to take greater control of their health and performance.

The Role of Motivation in Physical Activity Engagement

Motivation is a critical psychological factor that initiates and sustains health-related behaviors, particularly in the domain of physical activity. It determines how individuals select, direct, and maintain effort toward their fitness goals. Within the context of behavioral change, motivation plays a pivotal role in determining whether individuals adhere to exercise routines or discontinue them over time (Vučković & Duric, 2024).

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According to Self-Determination Theory (SDT), motivation exists on a continuum ranging from intrinsic motivation—engaging in physical activity for inherent enjoyment and personal growth—to extrinsic motivation, which is influenced by external rewards, peer expectations, or social pressures. Both types of motivation contribute meaningfully to sustained participation in physical activity, especially among young adults and athletes.

Mobile fitness applications are particularly well-suited to enhance both intrinsic and extrinsic motivation. These tools often incorporate features such as real-time feedback, visual progress tracking, achievement badges, reminders, and social sharing functions. Such design elements foster a sense of autonomy, personal competence, and goal-setting behavior—psychological needs that are central to sustaining motivation as posited by SDT (Molina & Sundar, 2020).

In the context of physical activity, motivation also entails psychological absorption and deep task engagement, wherein individuals are fully immersed in their activity. This state enhances persistence, focus, and satisfaction. However, maintaining such motivation can be challenging for student-athletes, who often face competing academic responsibilities, physical exhaustion, and performance-related pressures. Despite these challenges, student-athletes are among those who benefit most from sustained motivation, as it enables them to remain consistent in their training and wellness routines (Real & Ofrin, 2024).

Additionally, motivation is dynamic and can fluctuate based on internal states and external conditions. As such, fitness applications that provide personalized, continuous, and interactive support play a crucial role in maintaining engagement. Through daily prompts, structured exercise plans, and positive reinforcement, these digital tools can help mitigate motivational decline and promote more stable and long-lasting exercise habits—particularly for student-athletes managing demanding schedules.

Technology-Enhanced Interventions in Physical Education and Sports

The integration of digital technology into physical education and sports science has significantly transformed traditional approaches to instruction, athlete training, and health promotion. With the proliferation of mobile and web-based platforms, educators, coaches, and students now have access to tools that enhance teaching effectiveness,

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support individualized training, and encourage sustained physical engagement. These innovations are not only improving instructional delivery but are also expanding accessibility to resources and personalized guidance across diverse learning environments (Priyantin, 2021; Southcott & Jooste, 2023).

Among the most impactful technologies are mobile-based platforms, which allow for the delivery of exercise programs, real-time tracking of physical activity, dissemination of instructional media, and facilitation of peer interaction and feedback. Their inherent portability and ease of use make them particularly suitable for university settings, where student-athletes must balance academic obligations with demanding training schedules. These platforms support autonomy by enabling students to manage their own fitness routines beyond formal team practices or facility-based training, thereby promoting consistency in health behavior and physical activity maintenance (Ibragimova et al., 2025).

In addition to logistical convenience, technology-enhanced interventions serve as powerful tools for improving health literacy—defined as the ability to access, comprehend, and apply health-related information to make informed decisions. Such tools also nurture self-efficacy, which refers to an individual's belief in their capacity to execute actions that influence performance outcomes (Oh & Lee, 2024). Together, health literacy and self-efficacy are critical for empowering student-athletes to independently manage their health and wellness, especially when faced with academic stress or inconsistent access to physical training environments.

Moreover, recent findings suggest that the motivational impact of mobile fitness applications can be affected by gamification features and user experience, with intrinsic and extrinsic motivation interacting dynamically depending on design factors (Huang et al., 2024). When implemented strategically, digital tools can instill a culture of accountability and continuous improvement in both educational and athletic settings. Real-time feedback, performance metrics, and gamified elements encourage users to track progress, set adaptive goals, and remain engaged in long-term fitness pursuits.

This is particularly relevant in the post-pandemic educational landscape, where hybrid and blended learning modalities are widely adopted. In such contexts, technology is not merely a replacement for traditional face-to-face instruction but a complementary

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enhancement that enables more personalized, flexible, and data-informed approaches to physical education and sports development.

Methods

Research Design

This study employed a descriptive-correlational research design, a quantitative approach used to examine the statistical relationship between naturally occurring variables without experimental manipulation. This design was appropriate for the study's objective—to explore whether a significant association exists between student-athletes' exposure to physical fitness mobile applications and their motivation to engage in healthy lifestyle behaviors, particularly regular physical activity. Rather than aiming to establish causality, the study focused on describing patterns and analyzing correlations that could inform future wellness and technology-based interventions in the context of sports and physical education.

Participants, Sampling Technique, and Sample Size

The study involved 86 student-athletes from Batangas State University The National Engineering University, JPLPC-Malvar Campus, enrolled during the Academic Year 2024–2025. These participants were selected based on specific inclusion criteria: they had to be currently enrolled students who were actively participating in official university sports programs, defined as consistent attendance in training sessions (at least twice a week) and participation in intercollegiate competitions during the academic year.

Student-athletes were targeted because they represent a unique subgroup that must balance academic responsibilities with physical training and performance expectations, making them highly relevant for examining motivational factors related to physical activity and the use of fitness technology.

The total population of interest consisted of 96 student-athletes. Using Slovin's formula with a 5% margin of error, a minimum sample size of 86 was determined and further validated using the Raosoft sample size calculator, ensuring statistical adequacy and representativeness. A purposive sampling method was employed, selecting

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individuals who matched the inclusion profile. This approach guaranteed that the data collected were contextually appropriate and aligned with the research objectives.

Instruments

The primary data collection tool was a researcher-made structured questionnaire, designed to measure the two core variables of the study:

- Exposure to physical fitness mobile applications, and
- Levels of motivation to maintain a healthy lifestyle through physical activity.

The questionnaire was divided into two main sections:

• Part I – Exposure to Mobile Fitness Applications

This section consisted of 10 items adapted from the instrument developed by Kranz et al. (2013), modified to reflect the experiences and language of Filipino student-athletes. It assessed respondents' engagement with fitness applications in terms of frequency of use, types of apps accessed (e.g., workout tracking, nutrition, mindfulness), duration, and perceived usefulness. Sample item: "I follow daily tips or routines provided by the app." All items used a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

• Part II – Motivation to Engage in Physical Activity

This section contained 10 items, equally divided between intrinsic motivation (e.g., enjoyment, personal satisfaction) and extrinsic motivation (e.g., rewards, recognition, peer approval), based on the Self-Determination Theory by Deci and Ryan. A representative item for intrinsic motivation was: "I exercise because it helps reduce my anxiety and makes me feel good." An example of extrinsic motivation was: "I stay physically active to look good in public or during events." The same 5-point Likert scale was applied.

The questionnaire underwent content validation by three experts in Physical Education and Sport Science, who reviewed item relevance, cultural appropriateness, and clarity. A pilot test was conducted among 15 non-participant student-athletes, after which revisions were made based on observed ambiguities and expert feedback. Reliability analysis yielded acceptable internal consistency values:

- Cronbach's alpha for the Mobile App Exposure scale: 0.84
- Cronbach's alpha for the Motivation scale: 0.88

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This self-report instrument served as the sole data collection tool for the study. No physical performance tests or direct observations were conducted. All data were collected through questionnaire administration, with participants completing the tool after informed consent was obtained.

Data Analysis

The data gathered from the structured questionnaires were encoded, tabulated, and analyzed using statistical software. Descriptive statistics—including mean, standard deviation, and frequency—were applied to summarize student-athletes' levels of exposure to physical fitness mobile applications and their intrinsic and extrinsic motivation to maintain a healthy lifestyle. The use of a 5-point Likert scale enabled categorization of responses using predefined interpretation ranges (e.g., 3.51–4.00 = Highly Motivated).

To examine the relationship between the two variables, the study employed Pearson's product-moment correlation coefficient (r), which is suitable for measuring the linear association between continuous variables when both meet assumptions of normality and interval scaling. Assumption testing for normality and linearity was performed prior to the analysis using graphical inspection of histograms and scatterplots, confirming the appropriateness of the correlation approach.

While inferential tests such as t-tests or ANOVA were considered, the study did not aim to compare different demographic subgroups (e.g., by age, gender, or sport), but rather to determine the overall relationship between exposure to fitness applications and motivation. Thus, the correlation approach was deemed methodologically aligned with the study's objectives of establishing associations rather than differences.

Future studies may consider multivariate regression models or subgroup comparisons to further explore interaction effects, mediation, or moderation. However, for the scope of this investigation, descriptive-correlational analysis provided a valid and focused examination of the core research question.

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Ethical Statement

All ethical principles were strictly observed throughout the conduct of this study. Prior to data collection, student-athletes were fully informed of the study's purpose, procedures, potential risks, and expected benefits. Participation was entirely voluntary, and informed consent was obtained through a signed agreement form.

Confidentiality and anonymity were carefully maintained—no personal identifiers were recorded, and all responses were used solely for academic and research purposes. Participants were also informed of their right to withdraw from the study at any time without penalty.

The entire research process was conducted in accordance with accepted ethical standards for research involving human participants.

Results

This section presents the results of the study in relation to the specific research objectives. Data gathered from 86 student-athletes of Batangas State University The National Engineering University, JPLPC-Malvar Campus, were analyzed to determine their exposure to physical fitness mobile applications, their motivational levels (intrinsic and extrinsic), and the relationship between these two variables in promoting a healthy lifestyle.

Exposure of Student-Athletes to Physical Fitness Mobile Applications

This part of the study aimed to assess the extent of exposure to physical fitness mobile applications among student-athletes at Batangas State University The National Engineering University, JPLPC-Malvar Campus. The data were gathered using a structured questionnaire and analyzed using descriptive statistics, particularly mean and standard deviation, to determine the level of engagement with fitness apps. Exposure was categorized based on the interpretation scale provided.

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Table 1. Exposure of Student-Athletes to Physical Fitness Mobile Applications

Indicators	Mean	Standard Deviation	Interpretation
I install physical fitness applications on my device.	3.45	0.81	Exposed
I use physical fitness applications when I work out.	3.34	0.79	Exposed
I follow daily tips or routines provided by the app.	3.21	0.88	Exposed
I design my own workout plan using the app.	2.88	0.90	Exposed
I dedicate specific hours daily to exercise with the app.	3.10	0.74	Exposed
I evaluate my BMI using BMI-based applications.	3.28	0.77	Exposed
I use a calorie calculator to monitor daily intake.	3.12	0.85	Exposed
I track my heart rate and blood pressure using fitness apps or wearables.	2.85	0.89	Exposed
The fitness app updates my health data regularly.	2.97	0.83	Exposed
I record my workout details using exercise logs and videos.	3.11	0.78	Exposed
Overall	**3.10**	**0.72**	**Exposed**

Legend: 3.51–4.00 = Highly Exposed; 2.51–3.50 = Exposed; 1.51–2.50 = Slightly Exposed; 1.00–1.50 = Least Exposed

As shown in Table 1. Exposure of Student-Athletes to Physical Fitness Mobile Applications, the respondents demonstrated a moderate level of exposure to mobile fitness apps, with an overall mean of 3.10. Based on the 5-point Likert scale interpretation used in this study (3.51–4.00 = Highly Exposed; 2.51–3.50 = Exposed; 1.51–2.50 = Slightly Exposed; 1.00–1.50 = Least Exposed), this score falls under the "Exposed" category.

The most frequently reported behaviors included installing fitness apps (M = 3.45) and using them during workouts (M = 3.34), while features such as heart rate tracking (M = 2.85) and custom workout planning (M = 2.88) were less commonly used. These results are consistent with the findings of Bardus et al. (2021), who noted that users often engage more with basic tracking features due to ease of use and accessibility, while more complex app functions may be underutilized due to lack of familiarity or perceived difficulty.

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Intrinsic Motivation of Student-Athletes to Engage in Physical Activity

This portion of the study measured the level of intrinsic motivation among student-athletes in engaging in physical activity as part of a healthy lifestyle. Intrinsic motivation refers to doing an activity for its inherent satisfaction rather than for some separable consequence. The indicators used in the questionnaire were designed to assess health-driven, emotional, and personal growth-related reasons for engaging in physical fitness routines.

Descriptive statistics were used to determine the average response per item and identify which aspects of intrinsic motivation were most prevalent among the respondents.

Table 2. Intrinsic Motivation of Student-Athletes to Engage in Physical Activity

Indicators	Mean	Standard Deviation	Interpretation
I reduce my risk of developing heart diseases through exercise.	3.85	0.53	Highly Motivated
I strengthen my bones and muscles through regular workouts.	3.77	0.55	Highly Motivated
The results of my workouts make me feel proud and confident.	3.81	0.50	Highly Motivated
I believe exercising increases my chances of living a longer life.	3.88	0.49	Highly Motivated
I exercise to reduce my anxiety and depression.	3.72	0.58	Highly Motivated
Overall	**3.81**	**0.43**	**Highly Motivated**

Legend: 3.51–4.00 = Highly Motivated; 2.51–3.50 = Motivated; 1.51–2.50 = Slightly Motivated; 1.00–1.50 = Least Motivated

As presented in Table 2. Intrinsic Motivation of Student-Athletes to Engage in Physical Activity, respondents exhibited a high level of intrinsic motivation, with an overall mean of 3.81. This score falls within the "Highly Motivated" range, based on the Likert scale interpretation used in the study (3.51–4.00 = Highly Motivated; 2.51–3.50 = Motivated; 1.51–2.50 = Slightly Motivated; 1.00–1.50 = Least Motivated).

Among the highest-rated indicators were: "I believe exercising increases my chances of living a longer life" (M = 3.88) and "I reduce my risk of developing heart diseases through exercise" (M = 3.85). These suggest that the student-athletes are largely driven by health-oriented and self-fulfilling goals. This aligns with the findings of Bray (2019), who emphasized that individuals with strong intrinsic motivation are more likely

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to maintain long-term exercise habits due to the internal satisfaction and personal meaning they derive from physical activity.

The strong presence of intrinsic motivation is particularly relevant for student-athletes, as it suggests they value physical activity for its emotional, physiological, and psychological benefits, rather than relying solely on external validation. This is consistent with Deci and Ryan's Self-Determination Theory, which identifies intrinsic motivation as a key factor in fostering sustained behavior and performance.

Extrinsic Motivation of Student-Athletes to Engage in Physical Activity

This part of the study focused on evaluating the extent to which extrinsic motivation influences the physical activity engagement of student-athletes. Extrinsic motivation involves performing an activity to obtain external rewards or recognition, rather than for personal satisfaction. Indicators included image-related, social approval, and reward-based motivators.

Descriptive statistics were applied to determine the mean scores and standard deviations for each item to identify the strongest external motivators among respondents.

Table 3. Extrinsic Motivation of Student-Athletes to Engage in Physical Activity

Indicators	Mean	Standard Deviation	Interpretation
I exercise so I can wear fashionable clothes confidently.	3.51	0.71	Highly Motivated
I stay physically fit to join pageants or similar public events.	3.09	0.93	Motivated
I engage in exercise to enhance my physical attractiveness.	3.45	0.69	Motivated
I feel happy when my friends and family admire my physical appearance.	3.67	0.62	Highly Motivated
I participate in physical activities to win prizes or receive recognition.	3.18	0.82	Motivated
Overall	**3.38**	**0.64**	**Motivated**

Legend: 3.51–4.00 = Highly Motivated; 2.51–3.50 = Motivated; 1.51–2.50 = Slightly Motivated; 1.00–1.50 = Least Motivated

According to Table 3. Extrinsic Motivation of Student-Athletes to Engage in Physical Activity, respondents demonstrated an overall extrinsic motivation mean score of 3.38, which falls under the "Motivated" category based on the Likert scale used in the

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study (3.51–4.00 = Highly Motivated; 2.51–3.50 = Motivated; 1.51–2.50 = Slightly Motivated; 1.00–1.50 = Least Motivated).

The most prominent extrinsic motivator was the statement "I feel happy when my friends and family admire my physical appearance" (M = 3.67), followed by "I exercise so I can wear fashionable clothes confidently" (M = 3.51), both classified as "Highly Motivated" responses. These results indicate that social approval and body image are influential factors driving physical activity behavior among student-athletes.

This observation supports the findings of Spray and Warburton (2022), who noted that external motivators—such as peer recognition and appearance—play a significant role in exercise engagement, particularly among young adults navigating both athletic and social expectations. While these extrinsic factors may not sustain long-term adherence as effectively as intrinsic drivers, they still contribute meaningfully to initial and ongoing engagement in fitness routines.

The relatively lower rating of "I participate in physical activities to win prizes or receive recognition" (M = 3.18) suggests that tangible rewards are less influential compared to social validation, highlighting the nuanced nature of extrinsic motivation in this population.

Table 4. Correlation Between Exposure to Physical Fitness Mobile Applications and Motivation

Variables	Pearson's r	p-value	Interpretation
Exposure to Mobile Fitness Apps vs. Motivation to be Healthy	0.614	0.000	Significant Relationship

As shown in Table 4. Correlation Between Exposure to Physical Fitness Mobile Applications and Motivation, a strong positive and statistically significant relationship was found between student-athletes' exposure to mobile fitness applications and their motivation to engage in healthy lifestyle behaviors. The computed Pearson's r value of 0.614 with a p-value of 0.000 indicates that higher exposure to fitness apps is significantly associated with greater motivation levels.

This correlation suggests that mobile fitness apps serve as effective external supports for reinforcing both intrinsic and extrinsic motivational factors, including goal

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tracking, routine adherence, and self-monitoring. These findings align with the work of Molina and Sundar (2020) and Southcott and Jooste (2023), who emphasized that app features such as real-time feedback, achievement badges, and progress visualization can enhance user engagement and motivation.

The significant result also confirms the conceptual foundation of this study—that technology-based tools can influence psychological constructs such as motivation. As student-athletes increasingly integrate mobile applications into their health and training routines, these tools may serve as scalable, low-cost interventions that foster consistent physical activity.

Suggested Activities to Sustain Student-Athletes' Motivation for a Healthy Lifestyle

Based on the findings of this study, various activities were identified to support and enhance the motivation of student-athletes in maintaining a healthy lifestyle. These interventions are designed to address both intrinsic and extrinsic motivational factors and to promote sustained engagement in physical activity.

The suggested activities focus on structured group experiences, outdoor challenges, and reward systems to reinforce positive behavior. Table 5 outlines these activities along with their purpose and contribution to wellness and motivation.

Table 5. Suggested Activities to Sustain Student-Athletes' Motivation for a Healthy Lifestyle

Activity	Description	Purpose
Group Exercise Classes	Structured fitness sessions led by an instructor, attended by student-athletes with the shared goal of improving their physical fitness.	To create a socially supportive and enjoyable environment that fosters accountability and consistency.
Outdoor Adventure Programs	Activities conducted in natural settings (e.g., hiking, obstacle courses, trail runs) that challenge participants physically and mentally.	To build resilience, confidence, and emotional well-being while developing a deeper appreciation for nature.
Reward-Based Challenges	A goal-setting system with prizes or recognition for consistency, effort, or progress in fitness goals (e.g., fitness badges, certificates).	To incentivize participation by tapping into extrinsic motivation and celebrating achievements.

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Based on the findings of this study, several motivational strategies were proposed to enhance and sustain physical activity engagement among student-athletes. These interventions aim to address both intrinsic motivators (e.g., health, enjoyment, self-confidence) and extrinsic motivators (e.g., recognition, social approval), as reflected in the questionnaire results.

As outlined in Table 5. Suggested Activities to Sustain Student-Athletes' Motivation for a Healthy Lifestyle, the recommended activities include:

- Group Exercise Classes to promote social support, consistency, and accountability;
- Outdoor Adventure Programs to foster resilience, confidence, and intrinsic enjoyment through nature-based challenges;
- Reward-Based Challenges that tap into extrinsic motivation through goal-setting systems with recognition incentives such as fitness badges or certificates.

These recommendations are supported by the literature on motivation in physical activity. For example, Vučković and Duric (2024) emphasized the role of structured social environments in promoting sustained engagement, while Real and Ofrin (2024) highlighted the value of blending task enjoyment with external feedback and rewards.

By incorporating a mix of socially driven, challenge-based, and reward-oriented strategies, institutions can cultivate a more dynamic and engaging fitness culture that meets the motivational needs of student-athletes.

Discussion

The findings of this study reveal a moderate level of exposure to physical fitness mobile applications among student-athletes, with respondents engaging primarily in basic functions such as workout tracking, BMI evaluation, and routine logging. However, advanced features like heart rate monitoring, wearable integration, and custom workout planning were underutilized (see Table 1). This underutilization may stem from a lack of awareness, technical limitations of the apps used, or limited access to compatible devices (e.g., wearables). These results reflect similar trends reported by Bardus et al. (2021),

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who noted that users often favor simplicity and accessibility over advanced tracking functions.

The high level of intrinsic motivation observed (Table 2) suggests that student-athletes are internally driven by health-related outcomes, emotional well-being, and personal satisfaction—aligning with Self-Determination Theory (Deci & Ryan, 1985). Meanwhile, extrinsic motivators such as physical appearance and social recognition (Table 3) also played a role, though to a lesser extent. These findings underscore the importance of incorporating motivational features in fitness applications that address both intrinsic and extrinsic needs (Molina & Sundar, 2020).

The significant correlation between app exposure and motivation (Table 4) confirms the role of digital tools in supporting sustained health behaviors. As technology becomes more embedded in student-athletes' routines, fitness applications could be harnessed not only for tracking purposes but also for delivering personalized feedback, promoting goal-setting, and offering virtual peer support to maintain long-term adherence to physical activity.

Despite these findings, potential confounding variables must be considered. First, prior fitness levels could have influenced both app usage and motivation; more experienced athletes may already possess internal routines independent of digital support. Second, gender differences were not explored, though past studies (e.g., Vučković & Durić, 2024) have shown that males and females may engage with fitness technology differently in terms of goals and app preferences. Other demographic factors, such as socioeconomic background or type of sport, may also moderate the relationship between app exposure and motivation.

Finally, the study's reliance on self-report data could introduce bias. While reliability measures were strong (Cronbach's $\alpha = 0.84–0.88$), future studies may benefit from integrating objective activity tracking, longitudinal follow-ups, or qualitative feedback to deepen understanding of technology-mediated motivation.

Limitations of the study

While the study provides valuable insights into the relationship between mobile fitness app usage and motivation among university student-athletes, it is not without

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limitations. First, the reliance on self-reported data introduces potential recall bias and the possibility of socially desirable responses. Although the instrument demonstrated strong internal consistency, the accuracy of participants' answers cannot be fully guaranteed. Second, the cross-sectional research design limits the ability to draw causal inferences, as it captures only a snapshot of the relationship between variables at a single point in time. Longitudinal studies are recommended for future research to track changes in motivation and app engagement over time.

Additionally, the study did not control for confounding variables such as prior fitness levels, gender, type of sport, or access to digital resources, all of which could influence both app usage behavior and motivational outcomes. Future studies could benefit from employing stratified sampling or comparative statistical techniques to analyze these potential influences. Moreover, the use of a purposive sample from a single university campus may limit the generalizability of the findings. Expanding the sample to include multiple institutions and diverse geographic areas would enhance the external validity of the results.

In light of these limitations, future research is encouraged to conduct longitudinal or experimental studies to determine the causal effects of fitness app interventions on physical activity and motivation. Incorporating objective measures such as wearable technology or in-app analytics alongside self-reported data would improve accuracy and validity. Researchers may also explore gender-based or sport-specific differences in mobile app use, as well as investigate barriers to utilizing advanced features within fitness applications. These efforts will contribute to more tailored, evidence-informed strategies for promoting physical activity among student-athlete populations.

Conclusion

This study concluded that physical fitness mobile applications have a meaningful impact on promoting healthy lifestyle behaviors among student-athletes at Batangas State University The National Engineering University, JPLPC-Malvar Campus. The findings revealed that student-athletes exhibit a moderate level of exposure to these applications, utilizing them primarily for basic functions such as guided workouts and BMI tracking. Despite this, the level of motivation to engage in physical activity was generally high,

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with intrinsic motivation—rooted in personal satisfaction, emotional well-being, and health benefits—being more prominent than extrinsic factors like social recognition and physical appearance. The study further established a strong and statistically significant positive correlation between exposure to fitness apps and motivation levels, emphasizing that increased use of these applications is associated with greater motivation to pursue and sustain healthy habits.

These results underscore the potential of mobile fitness technologies as valuable tools for both health promotion and performance enhancement among student-athletes. By integrating such technologies into physical education programs, sports training, and wellness initiatives, institutions can support students in achieving better health outcomes, developing discipline, and fostering long-term engagement in physical activity. The findings also suggest the need for structured guidance on how to fully utilize app features to maximize benefits. Although the study was limited to one institution and specific population, it provides important insights that can inform future research and practice. Broader implementation of mobile fitness strategies, supported by coaches and educators, can empower student-athletes to take greater responsibility for their health and well-being, both during and beyond their academic careers.

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