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Understanding Physical Activity Participation: Motivation, Barriers and Quality of Life from a Mixed-Methods Holistic Perspective[1]

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Abstract

Physical inactivity among university students remains a significant public health concern despite well-established benefits for physical, psychological and social well-being. This mixed-methods study compared quality of life, sport motivation and perceived barriers between physically active and inactive students and explored their subjective experiences. Quantitative data were collected from 1066 undergraduate and associate degree students at Nevşehir Hacı Bektaş Veli University using the Short Form-36 Health Survey, the Sport Motivation Scale and the Physical Activity Barriers Questionnaire. Data were analyzed using the Kolmogorov–Smirnov test for normality, Spearman's rank correlation coefficients and Mann–Whitney U tests. Qualitative data were obtained through semi-structured interviews with 11 purposively selected students and analyzed via conventional content analysis within a phenomenological framework. Results revealed moderate negative correlations between perceived barriers and both quality of life and sport motivation and a weak positive association between motivation and quality of life. Physically active students reported significantly higher vitality, physical functioning, general health, mental health and stronger intrinsic and integrated motivation, whereas inactive students reported greater environmental, social and personal barriers. Qualitative findings showed that active students emphasized intrinsic motivation, psychological well-being, social belonging and self-efficacy, while inactive students highlighted motivational deficits, lack of guidance, time constraints and limited social support. Overall, students' physical activity behavior is shaped by multidimensional interactions among motivation, perceived barriers, self-efficacy and contextual factors, underscoring the need for integrated interventions that combine motivational support, professional guidance and peer-based strategies to promote sustainable participation.

Keywords: Physical Activity, Quality of Life, Sport Motivation, Perceived Barriers, Statistical Analysis

1. Background

In recent decades, physical inactivity and sedentary lifestyles have emerged as major global public health concerns. Technological developments and increasingly sedentary daily routines have substantially reduced individuals' levels of physical movement, contributing to the rising prevalence of obesity, cardiovascular diseases and other chronic health conditions.

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These trends generate significant consequences not only for physical health but also for psychological well-being and overall quality of life. A substantial body of research consistently demonstrates that regular physical activity improves cardiovascular endurance, muscular strength and general health status while simultaneously reducing the risk of chronic diseases (Menteş et al., 2011). Beyond its physiological benefits, structured and sustained participation in physical activity also promotes social interaction, supports healthy lifestyle behaviors and discourages engagement in harmful habits (Korkmaz & Yıldırım, 2025). Even relatively modest increases in moderate-to-vigorous physical activity have been shown to significantly reduce disease burden and healthcare expenditures, particularly among previously inactive populations (Powell et al., 2019).

More recently, the relationship between physical activity and well-being has increasingly been conceptualized within a holistic framework that emphasizes the multidimensional nature of health. Within this perspective, physical activity is not merely a behavioral health practice but a complex lifestyle phenomenon embedded in psychological, social and environmental contexts. Participation in physical activity can enhance emotional regulation, reduce stress, strengthen self-efficacy and facilitate social connectedness, thereby influencing multiple dimensions of mental health simultaneously. Consequently, understanding physical activity behavior requires an integrative perspective that considers motivational processes, psychosocial resources and environmental opportunities alongside observable behavioral outcomes.

University students represent a particularly critical population for examining these dynamics because they are in a transitional life stage during which long-term health behaviors and lifestyle habits are established. Empirical studies consistently report that students who regularly participate in physical activity experience higher levels of physical health, psychological well-being, social functioning and self-confidence compared with their physically inactive peers (Korkmaz & Yıldırım, 2025). Herbert et al. (2020) demonstrated that regular exercise significantly reduces depressive symptoms and perceived stress among university students. Similarly, Kong et al. (2022) reported that low- and moderate-intensity aerobic exercise can alleviate subclinical depressive symptoms. Maselli et al. (2018) further indicated that increased awareness of the benefits of physical activity strengthens both motivation and psychological well-being.

Despite these well-documented benefits, participation rates in physical activity among university students remain below recommended levels in many contexts. Deliens et al. (2015) found that a considerable proportion of students remain physically inactive even when sports facilities are available, potentially reinforcing sedentary lifestyle patterns later in life. Awadalla et al. (2014) associated physical inactivity among university students with lifestyle preferences and dependence on motorized transportation. Johannes et al. (2022) similarly reported that many students fail to meet recommended activity levels, highlighting the need for more effective participation strategies. Lack of motivation, time constraints and limited access to facilities have consistently been identified as major barriers to engagement (Awadalla et al., 2014).

Importantly, physical activity behavior cannot be fully explained by individual preferences alone. Rather, it emerges through the interaction of psychological characteristics, social influences and environmental conditions. Özçelep (2023) highlighted the influence of university-level physical education programs on students' participation levels. Clemente et al. (2016) emphasized that living arrangements and social environments play a decisive role in shaping physical activity behaviors and that social support mechanisms significantly facilitate participation. In addition, psychological determinants such as perceived self-efficacy and

intrinsic motivation are consistently identified as key predictors of sustained engagement in physical activity (Silva et al., 2015; McArthur et al., 2014). Support from family members, peers and academic communities further strengthens adherence to active lifestyles (Ickes & Sharma, 2012; Quirk et al., 2015). These findings indicate that physical activity participation is a multidimensional process shaped by the interaction of individual motivation, psychological resources, social relationships and environmental opportunities.

Although a growing body of literature has examined the relationship between physical activity and quality of life, many studies rely predominantly on quantitative approaches and provide limited insight into the subjective and experiential processes underlying participation behavior. Mixed-methods studies that simultaneously integrate quality of life, sport motivation and perceived physical activity barriers within a comprehensive analytical framework remain relatively scarce. However, given the multidimensional nature of physical activity and mental health, examining these factors together is essential for understanding how behavioral engagement is shaped by complex interactions among psychological, social and contextual mechanisms.

Against this background, the present study aims to compare the quality of life, sport motivation and perceived physical activity barriers of university students who regularly participate in physical activity and those who do not, combining quantitative analysis of statistical relationships with qualitative exploration of students' lived experiences. The findings are interpreted through three complementary theoretical lenses: Self-Determination Theory (Deci & Ryan, 2000, 2012), which frames sport motivation along a continuum from amotivation to autonomous, intrinsic engagement; Social Cognitive Theory (Bandura, 1999), which situates perceived physical activity barriers within the reciprocal interplay of self-efficacy, behavior and environment; and the Theory of Planned Behavior (Ajzen, 1991), which explains how perceived behavioral control shapes the translation of positive attitudes into actual participation. Together, these frameworks provide a multidimensional lens for interpreting how motivational, self-referential and volitional processes jointly shape physical activity participation. Consistent with this perspective, the results reported below indicate that physically active students report higher quality of life, stronger autonomous motivation and lower perceived barriers than their inactive peers, while the qualitative findings further reveal intrinsic motivation, self-efficacy and social belonging as the primary experiential mechanisms sustaining regular participation. The remainder of this paper is organized as follows: Section 2 describes the mixed-methods research design, sample and measurement instruments; Section 3 presents the quantitative and qualitative findings; and Section 4 discusses these findings in relation to the theoretical framework outlined above, before concluding with practical implications for university-based interventions.

2. Methodological Framework and Research Design

This study was conducted within a mixed-methods research design to comprehensively examine university students' participation in regular physical activity and its relationship with quality of life, sport motivation and perceived physical activity barriers. The mixed-methods approach enabled the statistical analysis of relationships among variables through quantitative data, while qualitative data allowed for an in-depth exploration of students' experiences, perceptions and meaning-making processes related to physical activity. In the quantitative dimension, a correlational survey model was adopted, whereas a phenomenological research design was employed in the qualitative dimension to investigate individuals' lived experiences and the meanings they attribute to them. Quantitative and qualitative data were integrated in a complementary manner, allowing not only the assessment of measurable outcomes of physical activity behavior but also the holistic examination of the psychological, social and

environmental processes shaping this behavior. This methodological approach enhanced the validity and explanatory power of the findings and contributed to the development of a multidimensional understanding of university students' participation in physical activity. Based on this theoretical and empirical background, the following hypotheses were formulated:

H1: Physically active students will report significantly higher health-related quality of life (SF-36) than physically inactive students.

H2: Physically active students will report significantly higher autonomous sport motivation (intrinsic, integrated and identified regulation) and lower amotivation than physically inactive students, consistent with Self-Determination Theory.

H3: Physically active students will report significantly lower perceived physical activity barriers than physically inactive students, consistent with Social Cognitive Theory's emphasis on self-efficacy.

H4: Perceived physical activity barriers will be negatively associated with both quality of life and sport motivation.

In parallel, the qualitative component was guided by the following research question: How do university students experience participation or non-participation in regular physical activity, and what meanings do they attribute to these experiences?

2.1. Quantitative Research Design

The quantitative dimension of this study was designed within the framework of a correlational research model to examine the relationships between university students' participation in regular physical activity and their quality of life, sport motivation and perceived physical activity barriers. A quantitative research approach was adopted due to its capacity to objectively identify statistical associations among variables based on data obtained from a large and diverse sample. Accordingly, data collected from students enrolled in different faculties and vocational schools were used to analyze both between-group differences according to physical activity participation status and interscale relationships. During the quantitative analysis process, the distributional properties of the data were carefully examined and the assumptions required for parametric testing were evaluated. As the normality assumption was not satisfied, non-parametric statistical methods were employed to ensure the robustness and validity of the analytical procedures.

2.1.1. Population and Sample

The target population of this study consisted of students enrolled at Nevşehir Hacı Bektaş Veli University during the 2025–2026 academic year. In order to enable comparative analyses of physical activity participation, quality of life and sport motivation across different academic contexts, a large and representative sample was constructed.

The study sample comprised a total of 1066 students who were enrolled in 11 academic units of Nevşehir Hacı Bektaş Veli University and voluntarily agreed to participate in the research. To ensure a multi-centered and heterogeneous structure, students were recruited from various faculties and vocational schools. The number of participants selected from each academic unit was determined by considering the institutional student distribution and accessibility conditions.

A purposive sampling strategy based on maximum variation sampling was employed in the selection of participants. Particular attention was paid to ensuring the representation of diverse faculties and academic disciplines within the university. Accordingly, students who were

accessible during the data collection period and who provided informed consent were included in the study. This approach facilitated the formation of a heterogeneous sample reflecting the diversity of the university population.

Table 1. Distribution of the Sample by Faculty/Unit (N = 1,066)

Faculty/Unit	n	%
Faculty of Dentistry	125	11.73
Faculty of Sports Sciences	121	11.35
Faculty of Economics and Administrative Sciences	107	10.04
Faculty of Tourism	107	10.04
Faculty of Education	107	10.04
Faculty of Engineering and Architecture	61	5.72
Faculty of Arts and Sciences	103	9.66
Faculty of Fine Arts	91	8.54
Faculty of Theology	85	7.97
Semra and Vefa Küçük Faculty of Health Sciences	50	4.69
Vocational School	109	10.23

Detailed information regarding the distribution of participants across faculties and schools is presented in Table 1. By including students from different academic fields, the study aimed to enhance the representativeness and generalizability of the findings.

2.1.2. Measurement Instruments

In this study, three standardized measurement instruments were used to comprehensively assess university students' physical activity participation processes. Health-related quality of life was evaluated using the Short Form-36 (SF-36) Health Survey, originally developed by Ware and Sherbourne (1992) and adapted into Turkish with established validity and reliability by Demiral et al. (2006). Perceived barriers to physical activity were assessed using the Physical Activity Barriers Questionnaire, originally developed by Ibrahim et al. (2013) and subsequently adapted and validated for the Turkish population by Yurtçiçek et al. (2024). Sport-related motivation was measured using the Sport Motivation Scale, developed within the framework of Self-Determination Theory by Mallett et al. (2007) and adapted into Turkish by Demir (2022). In the present study, the Turkish versions of all instruments with confirmed psychometric properties were administered.

The SF-36 assesses health-related quality of life across eight subscales and the scores were calculated on a 0–100 scale in accordance with the original scoring procedure. The Physical Activity Barriers Scale, consisting of three subscales and the Sport Motivation Scale, consisting of six subscales, are based on a five-point Likert format and subscale scores were computed by averaging the responses to the relevant items.

Participants' physical activity and sedentary behavior levels were additionally assessed using items from the Physical Activity Scale-2 (PAS-2), a nine-item self-report instrument originally developed by Pedersen et al. (2018) and validated for the Turkish population by Gür (2021). The PAS-2 items assess daily sleep, sedentary and occupational/academic activity,

active commuting and light-, moderate- and vigorous-intensity leisure-time physical activity. This instrument was administered alongside a single screening item ("Do you regularly participate in physical activity?") used for the primary Active/Inactive grouping variable; item-level PAS-2 responses were subsequently used as an independent behavioral check of this self-reported classification.

2.1.3. Statistical Analysis

In this study, correlations among the Sport Motivation Scale, the Physical Activity Barriers Scale and the SF-36 Quality of Life Scale were examined using correlation analysis. The normality assumption was evaluated using the Kolmogorov–Smirnov test, which indicated that the distributions deviated from normality ($p < 0.05$). Therefore, Spearman's rank correlation coefficient was applied instead of Pearson's correlation. Correlation strength was interpreted as weak ($|\rho| < 0.30$), moderate (0.30–0.49) and strong (≥ 0.50). Comparisons of scale subdimensions according to regular physical activity participation were conducted using the Mann–Whitney U test and effect sizes were calculated using the formula $r = \frac{|Z|}{\sqrt{N}}$. All analyses were conducted using MedCalc® software (version 23.4.5).

To validate the self-reported Active/Inactive classification, PAS-2 item-level responses (sedentary behaviors and light-, moderate- and vigorous-intensity leisure activity, among others) were compared between groups using the Mann–Whitney U test, consistent with the non-parametric approach used elsewhere in this study.

2.2. Qualitative Research Design

This section of the mixed-methods study was designed within a qualitative research framework to explore in depth university students' experiences of regular physical activity participation and non-participation, the meanings they attribute to these experiences and the psychological, social and environmental factors shaping this process. A phenomenological design was adopted specifically because it allows the essence of a shared experience — here, engaging or not engaging in regular physical activity — to be captured from participants' own first-person perspectives, rather than merely categorizing them as "active" or "inactive." Data were collected through semi-structured individual interviews, which enabled participants to articulate their perceptions, emotions and experiences related to physical activity in detail. Participants were selected using purposive sampling, specifically maximum variation sampling, to include both regularly active and inactive university students. Accordingly, the guiding research question was: *How do university students experience participation or non-participation in regular physical activity and what meanings do they attribute to these experiences*?

2.2.1. Data Collection and Participants

The qualitative component of this study was conducted within a phenomenological research framework using individual semi-structured interviews. The interviews were designed to enable participants to express their experiences, perceptions and the meanings they attribute to physical activity in their own words and within their contextual settings. Open-ended questions were employed to explore how students experience participation or non-participation in physical activity, the psychological, social and environmental factors influencing these processes and the role of physical activity in their daily lives.

The participant group consisted of 11 undergraduate students enrolled at Nevşehir Hacı Bektaş Veli University. Participants were selected using purposive sampling with a maximum variation strategy to ensure diversity of experiences. Accordingly, five participants were

regularly physically active students from the Faculty of Sports Sciences, while six participants were students from other faculties who did not engage in regular physical activity. The physically active group included students involved in fitness, athletics, equestrian sports, archery and volleyball. Appendix A Table A4 provides an overview of the participants' pseudonyms, together with their available demographic characteristics and physical activity-related information.

All participants were recruited on a voluntary basis. Interviews were conducted in settings that allowed participants to communicate comfortably. Participant confidentiality was strictly maintained and interview data were anonymized and coded during analysis. This methodological approach facilitated a comparative and in-depth examination of diverse experiential perspectives, thereby strengthening the phenomenological depth and analytical rigor of the study.

3. Results

3.1. Findings from Quantitative Analysis

First, frequency analyses were conducted using MedCalc to examine the associations between regular physical activity and socio-demographic variables. The results indicated statistically significant associations for gender, faculty, high school type, mother's education, monthly income and academic year. In contrast, no significant relationships were observed for age, father's education, or family income. Detailed chi-square statistics and frequency distributions are presented in Appendix A (Table A1).

Subsequently, the relationships among the Sport Motivation Scale, the Physical Activity Barriers Questionnaire and the SF-36 Quality of Life Questionnaire were examined using Spearman's rank correlation analysis and the corresponding results are presented in the relevant section. Finally, to determine whether significant differences existed between students who regularly participated in physical activity and those who did not in terms of quality of life, motivation and perceived barriers, the Mann–Whitney U test was applied. The results of these group comparisons are reported in detail, allowing for a comprehensive evaluation of both inter-scale associations and between-group differences.

Kolmogorov–Smirnov normality test was applied to the Sport Motivation Scale, Physical Activity Barriers Questionnaire and SF-36 Quality of Life Questionnaire to examine the distributional properties of the scale scores. The results of the Kolmogorov–Smirnov test are presented in Table 2.

Table 2. Kolmogorov–Smirnov Normality Test

Scale	n	K–S D Statistic	p-value	Normality
Physical Activity Barriers Questionnaire	1066	0.0552	< 0.0001	Does not show a normal distribution
SF-36 Quality of Life Questionnaire	1066	0.0362	0.0023	Does not show a normal distribution
Sport Motivation Scale	1066	0.0840	< 0.0001	Does not show a normal distribution

In addition, the Q–Q (quantile–quantile) plots demonstrating normal distribution are shown in Figure 1.

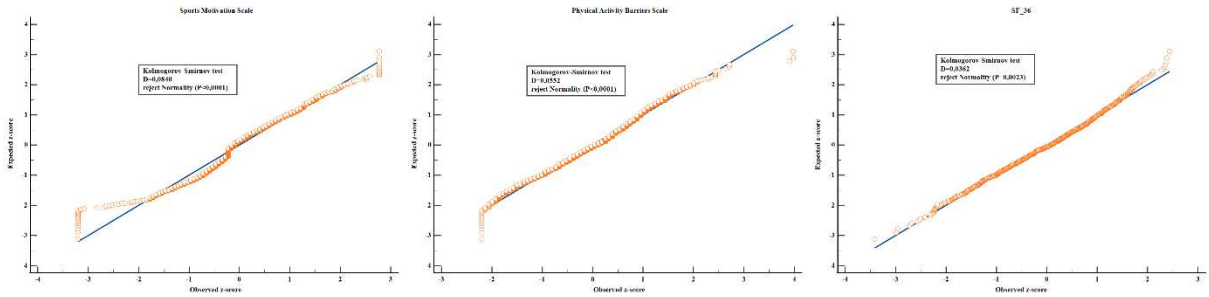


Fig. 1. Kolmogorov–Smirnov Normality Test and Q–Q (Quantile–Quantile) Plots

The analyses indicated that the scale scores did not satisfy the assumption of normality ($p < 0.05$). Therefore, instead of employing parametric methods that are sensitive to normal distribution assumptions, Spearman's rank-order correlation coefficient was considered methodologically more appropriate for examining the relationships among variables. The results of the Spearman correlation analysis are presented in Table 3.

Table 3. Spearman Correlation Analysis Between Total Scale Scores

Scale 1	Scale 2	Spearman's ρ (ρ_S)	95% CI (ρ)	p-value	Direction of Relationship	Strength of Relationship
Physical Activity Barriers Questionnaire	SF-36 Quality of Life Questionnaire	-0.390	-0.440 to -0.338	< 0.0001	Negative	Moderate
Physical Activity Barriers Questionnaire	Sport Motivation Scale	-0.325	-0.377 to -0.270	< 0.0001	Negative	Moderate
SF-36 Quality of Life Questionnaire	Sport Motivation Scale	0.150	0.090 to 0.208	< 0.0001	Positive	Weak

Note: *The following criteria were used for interpreting correlation coefficients: $|\rho| < 0.30$ = weak; 0.30–0.49 = moderate; ≥ 0.50 = strong relationship.*

According to the results of the Spearman correlation analysis, a moderate, negative and statistically significant relationship was identified between perceived physical activity barriers and quality of life (SF-36) ($\rho_S = -0.390$, $p < 0.0001$). This finding indicates that higher levels of perceived barriers to physical activity are associated with a marked decline in individuals' quality of life. Similarly, a moderate and negative significant relationship was observed between physical activity barriers and sport motivation ($\rho_S = -0.325$, $p < 0.0001$), suggesting that environmental, social and personal constraints limiting physical activity adversely affect individuals' motivation toward sport participation.

In contrast, a positive but weak statistically significant relationship was found between quality of life and sport motivation ($\rho_S = 0.150$, $p < 0.0001$). This result implies that although increased motivation toward sport tends to be associated with higher quality of life, the strength of this association remains limited. Overall, the findings indicate that perceived physical activity barriers exert a stronger influence on both quality of life and sport motivation, whereas the relationship between quality of life and motivation appears to be more indirect and comparatively weak.

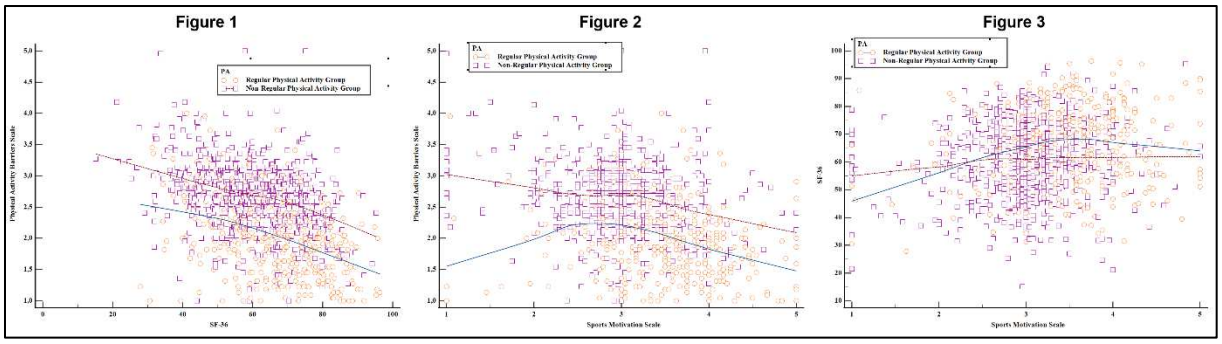


Fig. 2. Scatter Plots Illustrating Associations Based on Spearman Correlation Analysis

Figure 2 illustrates the relationships among the SF-36 total score, Physical Activity Barriers Questionnaire and Sport Motivation Scale for students who regularly participate in physical activity and those who do not. The first panel displays the association between SF-36 and physical activity barriers. Consistent with the Spearman correlation analysis, a moderate, negative and statistically significant relationship is observed. The scatter plots visually support this finding, indicating that higher perceived quality of life is associated with lower levels of perceived physical activity barriers. Notably, the negative slope is more pronounced among regularly active students, whereas inactive students exhibit higher barrier scores and greater dispersion.

The second panel depicts the relationship between physical activity barriers and sport motivation. In line with the correlation results, a moderate negative and significant association is evident. As motivation levels increase, perceived barriers tend to decrease, particularly among physically active individuals. In contrast, inactive students may continue to report relatively high barrier levels despite increased motivation, suggesting that motivation alone may be insufficient to overcome participation constraints.

The third panel presents the association between SF-36 and sport motivation. A weak but positive and statistically significant relationship is observed. The findings indicate that improvements in quality of life are accompanied by modest increases in motivation. However, the limited strength of this relationship implies that quality of life is not the sole determinant of sport motivation, especially among inactive students, for whom the association remains relatively weak.

Before conducting between-group comparisons, the internal consistency of the measurement instruments was evaluated using Cronbach's alpha coefficients. The results indicated acceptable reliability for the SF-36 Quality of Life Questionnaire with an alpha value of 0.740, the Physical Activity Barriers Questionnaire with an alpha value of 0.785 and the Sport Motivation Scale with an alpha value of 0.867. In addition, the Kolmogorov–Smirnov normality test revealed that the distributions of all three scale scores systematically deviated from normality. Given the violation of the normality assumption, non-parametric methods were considered more appropriate. Accordingly, the Mann–Whitney U test was employed to examine differences between students who regularly participated in physical activity and those who did not.

3.1.1. SF-36 Quality of Life Questionnaire

Table 4 presents the results of the Mann–Whitney U test comparing SF-36 subscale scores between students who regularly participated in physical activity and those who did not.

Table 4. Comparison of SF-36 Subscale Scores by Regular Physical Activity Participation

SF-36 Subscale	Mean Rank Active	Mean Rank Inactive	U	Z	p-value	Effect Size (r)
Bodily Pain	565.92	512.50	121,962	−2.778	0.0055	0.085
Role Limitations (Emotional)	564.57	513.38	122,526.5	−2.766	0.0057	0.085
Vitality	627.23	472.80	96,275.0	−8.033	0.0001	0.246
Physical Functioning	596.63	492.61	109,093.5	−5.498	0.0001	0.168
Role Limitations (Physical)	555.52	519.24	126,318.5	−1.924	0.0543	0.059
General Health	624.02	474.88	97,619.0	−7.755	0.0001	0.237
Mental Health	588.66	497.78	112,434.5	−4.720	0.0001	0.144
Social Functioning	553.77	520.37	127,051.5	−1.759	0.0786	0.050

Significant differences were observed in bodily pain, role limitations due to emotional problems, vitality, physical functioning, general health and mental health, with higher mean ranks consistently found among physically active students. These findings indicate that regular physical activity is associated with better physical and psychological well-being. The strongest effects were observed for vitality and general health, with moderate effect sizes, suggesting clinically meaningful benefits. In contrast, no statistically significant differences were found for role limitations due to physical health and social functioning and the corresponding effect sizes were small, indicating limited practical relevance. Overall, the results demonstrate that regular physical activity is more strongly related to subjective vitality, physical functioning and mental health than to role-based or social domains. These findings highlight the multidimensional contribution of physical activity to health-related quality of life and underscore its importance as a supportive lifestyle behavior among university students.

3.1.2. Physical Activity Barriers Scale

Table 5 presents the results of the Mann–Whitney U test comparing Physical Activity Barriers Scale subscale scores between students who regularly participated in physical activity and those who did not.

Table 5. Comparison of Physical Activity Barriers Scale Subscale Scores by Regular Physical Activity Participation

Subscale	Mean Rank (Active)	Mean Rank (Inactive)	U	Z	p-value	Effect Size (r)
Physical Environment	394.22	623.70	77,190.0	−11.924	< 0.0001	0.37
Social Environment	400.78	619.45	79,938.0	−11.404	< 0.0001	0.35
Personal Barriers	357.09	647.74	61,632.5	−15.063	< 0.0001	0.46

The results of the Mann–Whitney U test indicate statistically significant differences between students who regularly participated in physical activity and those who did not across all subscales of the Physical Activity Barriers Scale. Inactive students reported significantly higher perceived barriers in the physical environment, social environment and personal domains. Mean rank values consistently favored the active group, indicating lower perceived barriers among physically active students. Effect size estimates ranged from moderate to relatively strong, particularly for personal barriers. These findings suggest that environmental, social and individual constraints play a substantial role in limiting physical activity participation among university students.

3.1.3. Sport Motivation Scale

Table 6 presents the results of the Mann–Whitney U test comparing Sport Motivation Scale subscale scores between students who regularly participated in physical activity and those who did not.

Table 6. Comparison of Sport Motivation Scale Subscale Scores by Regular Physical Activity Participation

Subscale	Mean Rank (Active)	Mean Rank (Inactive)	U	Z	p-value	Effect Size (r)
Integrated Regulation	684.95	435.42	72,087.0	-13.006	< 0.0001	0.40
External Regulation	632.48	469.40	94,072.5	-8.500	< 0.0001	0.26
Introjected Regulation	652.22	456.62	85,802.5	-10.199	< 0.0001	0.31
Intrinsic Motivation	662.62	449.88	81,446.0	-11.097	< 0.0001	0.34
Amotivation	494.29	558.89	119,116.0	-3.373	0.0007	0.10
Identified Regulation	656.94	453.56	83,824.0	-10.617	< 0.0001	0.33

The Mann–Whitney U test results indicate significant differences between physically active and inactive students across multiple subscales of the Sport Motivation Scale. Active students reported significantly higher levels of identified regulation, intrinsic motivation, introjected regulation, external regulation and integrated regulation, reflecting stronger internalization and self-determined motivation toward sport participation. Effect sizes ranged from moderate to moderately large, particularly for integrated and intrinsic motivation, suggesting meaningful practical implications. In contrast, inactive students exhibited significantly higher amotivation scores, although the associated effect size was small. Overall, these findings indicate that regular physical activity is associated with more autonomous and self-regulated motivational profiles, characterized by greater personal endorsement, enjoyment and psychological engagement in sport. The results further suggest that sustained participation in physical activity contributes to the internalization of motivational processes and supports long-term adherence through both intrinsic and integrated forms of regulation.

3.1.4. Validation of the Physical Activity Grouping Variable

As an independent check on the self-reported Active/Inactive classification, item-level responses to the Physical Activity Scale-2 (PAS-2; Pedersen et al., 2018; Gür, 2021) were compared between groups (Appendix Table A2-A3). Physically active students reported significantly higher levels of light-, moderate- and vigorous-intensity leisure-time physical

activity than inactive students, with the largest between-group differences observed for vigorous-intensity activity (r = 0.47) and moderate-intensity activity (r = 0.32). In contrast, no significant between-group differences emerged for sleep duration, active commuting, or screen time/passive leisure. This pattern indicates that the self-reported grouping variable specifically captures differences in structured leisure-time exercise behavior rather than general daily activity level, providing independent behavioral support for the validity of the classification.

3.2. Findings from Qualitative Analysis

The qualitative analysis summarized in Appendix A, Table A5 revealed distinct yet multidimensional patterns between students who regularly participate in physical activity and those who do not. Overall, the findings indicate that physical activity is not merely a health behavior but rather a holistic life practice shaped by the interaction of psychological, social and environmental processes. Among physically active students, intrinsic motivation emerged as the primary driver of sustained participation (Theme 1). Participants associated exercise with enjoyment, pleasure and internal satisfaction rather than external pressure. Physical activity was also described as an effective coping mechanism that supports stress reduction, emotional regulation and mental clarity. In addition, active students emphasized physical and functional gains, including increased energy levels, improved endurance and faster recovery, as well as enhanced bodily awareness, which enabled them to better recognize physical limits and regulate exercise intensity (Theme 2). Sports environments further functioned as important contexts for socialization and belonging, facilitating the development of social networks and strengthening group identity (Theme 3). Participants also highlighted that regular engagement contributes to self-efficacy, self-confidence, discipline and time management, with these competencies extending to academic and personal domains (Theme 4). Moreover, many students described physical activity as a habitual and future-oriented practice, viewing it as a long-term investment in health, well-being and active aging (Theme 5).

In contrast, students who did not regularly participate in physical activity explained non-participation through the interaction of several barriers. These included loss of motivation and psychological unreadiness (Theme 1), insufficient knowledge and the need for professional guidance (Theme 2) and structural constraints such as time limitations, financial barriers and limited access to facilities (Theme 3). Participants also referred to health-related concerns and low perceived energy as factors reinforcing avoidance behaviors (Theme 4). Furthermore, the absence of social encouragement and supportive peer environments emerged as a significant deterrent (Theme 5). Nevertheless, interview data suggest that invitations from friends, peer support and group-based participation could function as important catalysts for initiating physical activity.

Taken together, the qualitative findings indicate that university students' physical activity behavior is shaped by the dynamic interplay of intrinsic motivation, psychological readiness, self-efficacy, social belonging and environmental conditions. While active students demonstrate internalization and long-term commitment to physically active lifestyles, inactive students appear to face modifiable barriers that highlight the need for integrated and supportive intervention strategies.

Following recommended practices for achieving integration in mixed-methods research (Fetters et al., 2013), a joint display was constructed to systematically juxtapose the quantitative and qualitative findings of this study alongside their theoretical interpretation. Joint displays make integration an explicit, visual analytic product rather than leaving it implicit within narrative discussion, allowing points of convergence, complementarity and divergence between data strands to be directly compared. Appendix A Table A6 presents this joint display across

the four key constructs examined in this study — health-related quality of life, sport motivation, perceived physical activity barriers and the motivation–quality of life relationship — together with the theoretical lens most relevant to each and a meta-inference summarizing how the quantitative and qualitative strands relate to one another.

4. Discussion

The findings of this study indicate that university students' physical activity behavior is shaped by multidimensional interactions among quality of life, motivation and perceived barriers. The integration of quantitative and qualitative results provides a comprehensive understanding of how psychological, social and environmental factors jointly influence participation in regular physical activity.

The quantitative results revealed that students who regularly participated in physical activity demonstrated small yet statistically significant advantages in several domains of health-related quality of life, particularly bodily pain, vitality and emotional role functioning. These findings are consistent with previous research documenting positive associations between physical activity and quality of life (Bize et al., 2007; Marquez et al., 2020; Gillison et al., 2009). Nevertheless, the relatively small effect sizes observed in this study may reflect the generally healthy status of university students. Previous studies similarly indicate that the benefits of physical activity are often more pronounced among older adults and individuals with chronic conditions, whereas effects among young and healthy populations tend to be more modest (McAuley et al., 2006; Elavsky et al., 2005; Motl et al., 2009; Gary, 2006; Lustyk et al., 2004; Miller et al., 2005; Maher et al., 2013; Joseph et al., 2014).

Motivation levels were also significantly higher among physically active students compared with their sedentary peers. This pattern aligns with evidence showing that engagement in physical activity generates psychological and social benefits that reinforce continued participation (Segar et al., 2011). Within the framework of Self-Determination Theory (Deci & Ryan, 2000), physical activity can satisfy individuals' fundamental psychological needs for competence, autonomy and relatedness, thereby strengthening intrinsic motivation (Gill et al., 2013). In this sense, the higher motivation observed among active students may reflect a positive feedback mechanism in which improved well-being and enjoyment reinforce sustained participation.

Perceived barriers also differed significantly between groups, with physically active students reporting lower barrier levels than inactive students. This finding is consistent with previous research indicating an inverse relationship between activity participation and perceived obstacles (İnal & Tunçer, 2020). From the perspective of Social Cognitive Theory (Bandura, 1999), repeated engagement in physical activity enhances self-efficacy beliefs, enabling individuals to cope more effectively with potential barriers. Consequently, lower perceived barriers among active students may reflect stronger confidence in their ability to manage challenges associated with participation.

Correlation analyses further support this interpretation. Moderate negative relationships were observed between perceived barriers and both quality of life and motivation, while the relationship between quality of life and motivation remained relatively weak. These results suggest that barriers exert a more direct influence on participation behavior than subjective well-being alone. From the perspective of the Theory of Planned Behavior (Ajzen, 1991), behavioral intentions are influenced not only by attitudes but also by perceived behavioral control and environmental constraints. Thus, even when individuals recognize the benefits of physical activity, perceived lack of time, resources or access to facilities may prevent the translation of positive attitudes into actual behavior.

The qualitative findings provide deeper insight into the experiential processes underlying these statistical relationships. Physically active students described physical activity as a source of psychological well-being, emotional regulation and mental clarity, consistent with studies emphasizing the protective effects of physical activity on mental health (Donnelly et al., 2016; Livingston et al., 2017; Tari et al., 2019; Dale et al., 2019; deJonge et al., 2020). Participants also reported increases in self-confidence and perceived competence, which correspond with mastery experiences identified as key determinants of self-esteem and motivation (Cabo et al., 2025). Furthermore, sports environments were frequently described as important social contexts fostering belonging, interaction and social integration. In line with Self-Determination Theory, the fulfillment of relatedness needs may facilitate the internalization of physically active lifestyles and promote long-term adherence.

Another notable qualitative finding concerns the role of physical activity in promoting discipline, time management and structured daily routines. Participants indicated that regular engagement in sports contributed to greater life organization and personal responsibility. Such findings reflect habit formation processes and reinforce the importance of behavioral consistency emphasized in the Theory of Planned Behavior.

In contrast, students who did not regularly participate in physical activity emphasized motivational deficits, time constraints, lack of guidance and environmental barriers as primary obstacles. Similar barriers have been widely documented in the literature (Ferreira Silva et al., 2022). From the perspective of Self-Determination Theory, motivational deficits may reflect unmet psychological needs for competence and autonomy. Likewise, the expressed need for professional guidance aligns with Social Cognitive Theory, which highlights the importance of observational learning, modeling and social reinforcement in the development of self-efficacy (Khan et al., 2014; Prieto-González & Alkouatli, 2025). Lack of practical knowledge and low confidence appear to hinder both the initiation and maintenance of physical activity.

Taken together, the integrated findings of this study indicate that physical activity participation among university students should be understood as a holistic behavioral process shaped by psychological, social and environmental factors. These results highlight the importance of moving beyond purely individual-level interventions and adopting more comprehensive strategies that address both motivational and contextual determinants of participation.

From a practical perspective, universities play a crucial role in promoting active lifestyles among students. Institutional interventions should not only focus on improving access to sports facilities but also aim to strengthen motivational support systems and social engagement opportunities. Programs that combine professional guidance, peer-based participation initiatives and accessible physical activity environments may be particularly effective in reducing perceived barriers and fostering sustainable participation behaviors.

5. Conclusions

This study demonstrates that physical activity participation among university students is shaped by the dynamic interaction of psychological, social and environmental factors. The integrated analysis of quantitative and qualitative findings revealed that students who regularly engage in physical activity exhibit higher levels of quality of life, stronger intrinsic and integrated motivation and lower perceived barriers, while inactive students tend to experience greater motivational deficits, structural constraints and limited social support. These results highlight that physical activity should be understood not merely as an individual health behavior but as a multidimensional lifestyle practice embedded in broader psychosocial and institutional contexts. From a policy perspective, universities should adopt integrated intervention strategies

that combine accessible sports facilities, professional guidance, peer-based participation programs and supportive campus environments to reduce perceived barriers and foster sustainable engagement in physical activity. Nevertheless, this study has several limitations, including the use of cross-sectional data, reliance on self-reported measures and the focus on a single university context, which may limit the generalizability of the findings. Future research could expand this line of inquiry through longitudinal designs, multi-university samples and intervention-based studies to better understand causal mechanisms and evaluate the effectiveness of institutional strategies aimed at promoting active lifestyles among university students.

Data Availability

The datasets used in this study are not publicly available due to ethical principles and confidentiality requirements; however, they can be obtained from the corresponding author upon reasonable request.

Ethics Approval

This study was reviewed and approved by the Scientific Research and Publication Ethics Committee of Nevşehir Hacı Bektaş Veli University. The research protocol was evaluated at the committee meeting held on September 27, 2024 and was approved with decision number 2024.09.243. All procedures were conducted in accordance with the principles of the Declaration of Helsinki. Informed consent was obtained from all participants prior to data collection and confidentiality and data protection were strictly maintained throughout the study.

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Authors' Contributions

MTK conceptualized the study, coordinated the research process and supervised all stages of the project. ŞCÖ and OD contributed to data collection, participant coordination and manuscript preparation. NU performed the statistical and qualitative analyses and contributed to the interpretation of results and manuscript writing. All authors read and approved the final manuscript.

Competing Interests

The authors declare that they have no competing interests.

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