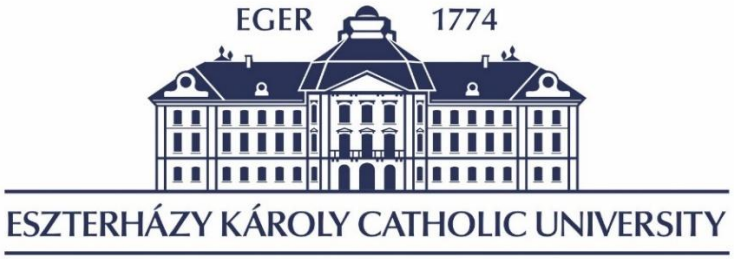
Eszterházy Károly Catholic University Doctoral School of Education

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# EXAMINATION OF HEALTH CONSCIOS BEHAVIOR AMONG UNIVERSITY STUDENTS IN EGER

Theses of the doctoral dissertation

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# 1. Introduction and Justification of the Topic Selection

The preservation and development of health fundamentally depend on individual decisions, which require complex thinking and everyday actions (Konczos, 2023). Although health has always been regarded as a fundamental value in human thought, preventive actions often recede into the background, and many people only pay attention to their health once it has been compromised, when restoration demands considerable effort. Experts agree that fostering appropriate health behavior is an educational task that should be made a general objective of education (Bábosik, 2004; Bárdos & Kraiciné Szokoly, 2018). The development of health behavior is the responsibility of every educational setting, and the university represents the final institution that, as a value-creating and exemplary environment, ensures both knowledge transfer and attitude formation (Michie et al., 2011; Kraiciné Szokoly, 2016; Varsányi & Vitrai, 2016). Within university culture, health-conscious behavior should be integrated so that students can sustain a healthy lifestyle in the future (Szilárd, 2020).

The health and well-being of university students are particularly important, as numerous lifestyle-related attitudes are established during the period of post-adolescence. During this stage, young people leave their parental homes, begin independent lives, and make their own decisions (Jay, 2012; Arnett et al., 2014; Dinyáné & Pusztai, 2016; Szlamka et al., 2021; Chaturvedi et al., 2021), while the brain structures responsible for self-regulation are not yet fully developed, and emotions often override rational decision-making (Kovács, 2012; Sirois, 2015).

This phenomenon can be interpreted within the framework of Antonovsky's salutogenic model (Antonovsky, 1979), which emphasizes the preservation of health through protective factors and available resources. Its central concept, the sense of coherence (SOC), enables individuals to perceive challenges as comprehensible, manageable, and meaningful, thereby supporting health-conscious decision-making (Eriksson & Lindström, 2006). The model is particularly relevant among higher education students, where autonomy and the social environment jointly shape health behavior.

# 2. Research Objectives

## *2.1. Problem Statement*

The health-conscious behavior of university students is a prominent area of research, as lifestyle habits established at a young age have long-term effects on health and well-being (Balatoni et

al., 2016; Kosztin & Balatoni, 2021). Studies indicate that during university years, students' physical activity tends to decrease while mental workload increases, which may lead to adverse health and psychological outcomes (Puente-Hidalgo et al., 2024; Ntoumanis, 2001; Bastemeyer & Kleinert, 2021). Although the lifestyle of sports-major students differs from that of non-sports majors, previous research has not conclusively demonstrated that regular physical activity alone results in higher life satisfaction or better mental health (Barabásné et al., 2020; Demirel, 2016; Józsa, 2021).

Motivation, body awareness, and healthy nutrition are key factors in the development of health-conscious behavior, while lack of time, lack of interest, and a sense of loss of control may lead to reduced activity levels (Balatoni et al., 2019; Pfau & Mészáros, 2023; Brown & McLoughlin, 2024). Pilates and other body-awareness-based exercise forms enhance body perception, mental focus, and health-conscious behavior, yet their effects among university students have received relatively little attention (Kloubec, 2011; Caldwell et al., 2013; Mazzarino et al., 2015).

Higher education institutions play a crucial role, as students' lifestyle patterns influence their future habits; therefore, it is essential that they acquire patterns that support a conscious and healthy lifestyle in the long term (Kovács, 2016; González-Valero et al., 2019).

### *2.2. Research Aim*

The aim of this research is to explore, based on domestic and international literature, the main characteristics of university students' health-conscious behavior, with particular emphasis on the interrelations among motivation for mental health, physical activity, body awareness, and healthy nutrition. The study focuses on first-year sports and non-sports major students at Eszterházy Károly Catholic University, analyzing changes over the semester and differences between groups. The goal is to examine the relationships among various health dimensions and to assess the sustainability and effectiveness of the Lifelong-Pilates method in developing body awareness. The findings of this research aim to provide a more precise understanding of the target group's lifestyle and to inform the development of a health-education program that aligns with university students' daily lives and can be implemented at the institutional level.

### *2.3. Research Questions*

1. What differences can be observed in life satisfaction (SWLS) and physical activity (IPAQ) between first-year sports-major and non-sports-major students, and how do these dimensions change over the course of the semester?

2. How does perceived stress (PSS) develop during the semester, and what relationships does it show with well-being (WBI), life satisfaction (SWLS), and body awareness (BAQ)?
3. What correlations exist among physical activity (IPAQ), body awareness (BAQ), and well-being (WBI), and are there differences between sports-major and non-sports-major students?
4. What correlations exist among motivation for healthy nutrition (MHES), body awareness (BAQ), physical activity (IPAQ), well-being (WBI), life satisfaction (SWLS), and perceived stress (PSS), and are there differences between sports-major and non-sports-major students?
5. What is the impact of higher physical activity (IPAQ) on life satisfaction (SWLS)?
6. To what extent do time management skills and motivation levels influence the lack of health-conscious behavior among first-year students, and are there differences between the two majors?
7. How capable are first-year, non-sports-major students of performing the taught Pilates exercises independently over the semester, and to what extent do they apply the body-awareness skills acquired during the exercises in their everyday lives?

### *2.4. Research Hypotheses*

**H1**: It is hypothesized that sports-major students will achieve significantly higher scores in life satisfaction (SWLS) and physical activity (IPAQ) than non-sports-major students, and that the difference between the groups will increase over the course of the semester.

**H2**: It is hypothesized that perceived stress (PSS) will negatively correlate with well-being (WBI), life satisfaction (SWLS), and body awareness (BAQ) among students, and that this negative relationship will be stronger among non-sports-major students. It is also expected that the scores on the measured scales will differ between sports-major and non-sports-major students, and that these differences will intensify during the semester.

**H3**: It is hypothesized that the level of physical activity (IPAQ) will positively correlate with body awareness (BAQ) and well-being (WBI) among sports-major students, whereas these correlations will be weaker or non-significant among non-sports-major students.

**H4**: It is hypothesized that motivation for healthy nutrition (MHES) will positively correlate with body awareness (BAQ), physical activity (IPAQ), well-being (WBI), and life satisfaction

(SWLS), and negatively with perceived stress (PSS) among students. Among non-sports-major students, these correlations may be weaker.

**H5**: It is hypothesized that higher physical activity (IPAQ) alone does not necessarily result in higher life satisfaction (SWLS).

**H6**: It is hypothesized that the lack of health-conscious behavior among students is primarily attributable to poor time management and low motivation, and that significant differences may exist between sports-major and non-sports-major students.

**H7**: It is hypothesized that regular practice of the Lifelong-Pilates method can be effectively integrated into university students' daily lives, providing a sustainable approach to enhancing physical activity and body awareness.

## 3. Literature Review

Health-conscious behavior is a complex, multidimensional construct that plays a decisive role in shaping health status and well-being. The literature places particular emphasis on physical activity, which is one of the most significant predictors of both physical and mental health. Numerous studies indicate that regular exercise promotes psychological well-being, reduces stress levels, and increases life satisfaction (VanKim & Nelson, 2013; Koç & İnan, 2019; Deng et al., 2023). However, among student athletes, lower levels of psychological stress are not consistently observed, highlighting the complexity of the phenomenon (Demirel, 2016; Józsa, 2021).

Mental health is also a key factor in determining the quality of life of university students. Increased academic and exam-related stress often leads to elevated stress levels and the adoption of maladaptive coping strategies (Lukács-Márton et al., 2020; Bastemeyer & Kleinert, 2021). In the domestic student population, psychological stress exceeds the European average (FETA, 2023), underscoring the need for intervention approaches.

Healthy nutrition is a fundamental pillar of preventive health, playing a crucial role in preventing chronic, lifestyle-related diseases and contributing to the maintenance of long-term quality of life (Panyor, 2019; Guh et al., 2009; Di Angelantonio et al., 2016).

Motivation during the university years can be understood as a dynamic process: external motivational factors (e.g., aesthetic considerations) may gradually transform into internal motivation (e.g., health preservation, self-development) (Szatmári et al., 2011). Major barriers

to regular physical activity include lack of time, low motivation, and disinterest in exercise (Balatoni et al., 2019; Pfau & Mészáros, 2023; Brown & McLoughlin, 2024).

Body awareness is a relatively underexplored but highly relevant component in domestic research. Developing body perception, internal attention, and self-reflection facilitates health-conscious decision-making and strengthens a preventive approach (Köteles, 2014). In this area, the application of the Pilates method appears particularly promising, as it simultaneously enhances body awareness and supports mental well-being (Kloubec, 2011; Caldwell et al., 2013; Mazzarino et al., 2015).

## 4. Methods

The participants of the study were selected in three phases. In the first phase, a written survey was conducted to assess the entire population of first-year university students in Eger; therefore, a non-probability sampling method was applied. A total of 272 students participated in the longitudinal study, divided into two groups: 66 sports-major students and 206 non-sports-major students. The sports-major group consisted of students enrolled in Coaching, Physical Education Teaching, Recreation and Lifestyle, or Sports Management programs, whereas the non-sports-major group included students from other university programs who were in contact with the Institute of Sport Science through the General Physical Education course.

The questionnaire included the following validated instruments: WHO Well-Being Index (WBI), Satisfaction with Life Scale (SWLS), Perceived Stress Scale (PSS), Motivation for Healthy Eating Scale (MHES), International Physical Activity Questionnaire (IPAQ), and Body Awareness Questionnaire (BAQ). Quantitative data were recorded using Microsoft Excel and analyzed with SPSS, employing Pearson correlation coefficients, Fisher's Z-transformation, ANOVA, repeated measures ANOVA, paired t-tests, and structural equation modeling (SEM).

In the second phase, simple random sampling was used to select 134 students, who participated in semi-structured interviews at the beginning and end of the semester. The interviews contained questions complementing the questionnaire, aimed at exploring health-conscious behavior.

In the third phase, purposive sampling was applied to include 12 students participating in the Pilates course offered by the Institute of Sport Science. In this phase, participants were interviewed twice using semi-structured interviews to examine the long-term effects of Pilates

practice. Qualitative data were recorded with Alrite software, and processed and visually illustrated using the MAXQDA software.

# 5. Results

## *5.1. Correlation Analyses*

Based on the correlation analyses among the examined variables, a consistently positive relationship was observed between the Well-Being Index (WBI) and Satisfaction with Life (SWLS) in both groups, indicating that higher well-being is associated with higher life satisfaction. Perceived stress (PSS) had a negative impact on both well-being and life satisfaction, while the negative correlation between stress and motivation for healthy eating (MHES) was particularly evident among sports-major students. A positive relationship was also found between motivation for healthy eating and physical activity levels (MET) in the sports-major group, as well as between body awareness (BAQ), well-being, and healthy eating motivation, especially within the sports-major group.

The correlation results also revealed statistically significant differences between the two groups for some variables. In September, a significant difference was observed in the relationship between WBI and SWLS, with a stronger correlation among non-sports-major students. The correlation between perceived stress (PSS) and physical activity (IPAQ) also differed significantly between groups, showing a negative association in the sports-major group. In December, a significant difference emerged in the correlation between life satisfaction (SWLS) and motivation for healthy eating (MHES): positive for non-sports-major students and negative for sports-major students. Furthermore, the relationship between physical activity (IPAQ) and body awareness (BAQ) was significantly stronger in the sports-major group.

## *5.2. Differences in Scales by Major and Measurement Time*

Well-Being (WBI) scores increased significantly in both groups. Sports-major students consistently showed higher average scores, while non-sports-major students demonstrated a greater improvement in well-being over the semester. Although the increase for sports-major students was smaller, it was also statistically significant.

Satisfaction with Life (SWLS) scores generally increased across the semester. Major alone did not show a significant effect; however, the interaction effect indicated that the increase

was more pronounced and statistically significant for sports-major students, whereas it was not significant for non-sports-major students.

Perceived Stress (PSS) scores exhibited temporal changes: stress levels decreased among sports-major students and increased among non-sports-major students. The interaction between time and major was statistically significant, while major alone was not.

Analysis of motivation for healthy eating (MHES) revealed that sports-major students exhibited higher intrinsic motivation, whereas non-sports-major students were characterized by external, controlled motivation and amotivation. Temporal changes were mainly observed in introjected and external regulation, while integrated, identified, and autonomous motivation dimensions remained stable with no intergroup differences.

Physical activity (IPAQ) increased significantly in all groups. Sports-major students had higher MET scores throughout, and the magnitude of increase over time was also greater, indicating higher baseline activity levels and more pronounced improvement.

Body awareness (BAQ) increased in both groups over the semester; however, the magnitude of increase was significantly greater among sports-major students, reflecting the interaction between major and time.

### *5.3. Structural Equation Modeling (SEM) of the Examined Variables*

The SEM results indicate that body awareness (BAQ) positively influences physical activity (IPAQ), well-being (WBI), and life satisfaction (SWLS), whereas perceived stress (PSS) exerts a negative effect on these outcomes as well as on motivation for healthy eating (MHES). Physical activity (IPAQ) and motivation for healthy eating (MHES) moderately enhance well-being (WBI), which in turn has a strong positive impact on life satisfaction (SWLS). Based on the research findings, it can be concluded that physical activity (IPAQ) contributes indirectly to increased life satisfaction (SWLS) through its effect on well-being (WBI).

### *5.4. Results of the Oral Interviews*

#### *5.4.1. Semi-structured interviews with participants selected via simple random sampling*

In September, students reported mixed emotions at the beginning of university life, experiencing both positive and negative feelings. Sports-major students highlighted the challenge of balancing academic studies with training, while non-sports-major students emphasized identity exploration and separation from their parents as key challenges. Regarding health-conscious behavior, both groups underlined the importance of regular physical activity, balanced nutrition, and adequate hydration. Non-sports-major students identified family,

friends, the internet, and school as their main sources of health-related knowledge, whereas sports-major students additionally relied on coaches, sports professionals, and teammates.

The December interviews revealed that students had adapted to university life routines but faced new challenges. The approaching exam period caused stress, which was more pronounced among non-sports-major students. Sports-major students reported feeling calmer, as they were confident in managing training alongside their studies. Changes in healthy eating habits were limited (13%), while snacking and consumption of fast food increased (69%), and only 26% paid attention to adequate water intake. Physical activity among sports-major students was primarily ensured through their training sessions, whereas non-sports-major students relied mainly on general physical education classes and daily walking.

*5.4.2. Semi-structured interviews with participants selected via purposive sampling*

In the May interview, among the 11 participants of the Pilates course, 6 reported performing the exercises they learned regularly on a weekly basis, while 5 practiced only rarely or not at all. According to the December interview, 3 of the regularly active participants continued to integrate the Pilates exercises into their training, and 3 who previously practiced at home followed the exercises using YouTube videos, whereas those who practiced rarely or occasionally had completely discontinued Pilates. Participants who maintained regular practice cited improvements in body awareness and ease of integration into their routines as reasons for continuing, while those who stopped reported lack of interest, laziness, and time constraints as the main factors for discontinuation.

## 6. Conclusion

**H1** was partially supported: sports-major students demonstrated significantly higher physical activity levels than non-sports-major students, with a greater increase observed over the semester. Regarding life satisfaction, the group differences were not significant, although a slight increase was noted among sports-major students.

**H2** was partially supported: perceived stress exhibited a negative relationship with well-being, life satisfaction, and body awareness for all students; however, the hypothesized stronger relationship among non-sports-major students was not confirmed. Sports-major students scored higher, and the group difference did not increase over the semester.

**H3** was partially supported: among sports-major students, physical activity positively correlated with body awareness, whereas this relationship remained weak among non-sports-

major students. The association between physical activity and well-being differed between groups at the beginning of the semester but equalized by the end, resulting in no significant group differences.

**H4** was partially supported: motivation for healthy eating positively correlated with physical activity and body awareness for all students, while associations with well-being, life satisfaction, and perceived stress were only partially strengthened. Correlations were generally stronger among sports-major students, and significant group differences emerged for body awareness and stress.

**H5** was partially supported: physical activity alone did not directly increase life satisfaction, but it contributed indirectly through its positive effect on well-being.

**H6** was fully supported: the lack of health-conscious behavior among students was primarily attributable to poor time management, lack of motivation, laziness, and limited financial resources; for non-sports-major students, limited knowledge of sports facilities also acted as a barrier.

**H7** was partially supported: the Lifelong Pilates method could be integrated into the daily lives of certain student groups, with regular practitioners incorporating exercises into both their training routines and everyday activities. However, the method's lifelong sustainability could not be generalized, as some students discontinued practice within a short period due to motivational, interest-related, and time constraints.

## 7. Discussion

The results of the study align with Antonovsky's (1987) salutogenic model, which emphasizes the role of the sense of coherence—comprehensibility, manageability, and meaningfulness—in stress management and the maintenance of well-being. Our findings indicate that the relationships between body awareness, physical activity, life satisfaction, and well-being fit well with the principles of this model: sport and a conscious lifestyle act as resources supporting students' well-being.

Sports-major students consistently exhibited higher well-being and life satisfaction throughout the semester, whereas non-sports-major students showed moderate but significant increases, consistent with previous research (Webb & Foster, 2015; Collins et al., 2018; Güngör & Celik, 2020).

Subjective experiences of physical activity played a central role in the study. Observations suggest that sports-major students perceive moderate-intensity activity as part of their daily routine, while non-sports-major students experience it as a significant effort. This difference highlights that self-reported physical activity may involve subjective variability, with fitness level being a critical factor in interpreting psychological effects.

Body awareness was higher among sports-major students and increased during the course, in line with prior research (Zirek et al., 2021; Bulut & Pehlivan, 2023). Analysis of the subscales of the Motivation for Healthy Eating Scale (MHES) indicated stronger internal and autonomous motivation among sports-major students, whereas external and controlled motivation, as well as amotivation, predominated among non-sports-major students, suggesting that motivational profiles differ according to field of study.

Interviews conducted during the semester confirmed that time management difficulties, fluctuating motivation, and financial constraints were the main factors influencing physical activity and the adoption of health-conscious behaviors, consistent with international findings (Balatoni et al., 2019; Pfau & Mészáros, 2023; Brown & McLoughlin, 2024). In the case of the Lifelong Pilates program, sustainability depended primarily on the development of internal motivation: initial participation was externally regulated, but positive experiences prompted students to continue independently.

## 8. Recommendations

**I.** I recommend introducing a practical course titled *"Fundamentals of Health-Conscious Behavior"* for first-year students, concluding with a practical grade, which comprehensively presents the principles of a conscious lifestyle and lays the foundation for students' health-conscious decision-making.

**II.** I recommend increasing the number of mandatory semesters of the *"General Physical Education"* course to three, thereby supporting students' motivation and physical activity over a longer period.

**III.** I recommend presenting the various forms of physical activity to non-sports students during enrollment or the Freshman Camp, enabling them to make informed choices regarding their preferred sport.

**IV.** I recommend introducing students to available sports opportunities during open days or Freshman Week activities, familiarizing them with the university's and city's sports infrastructure.

**V.** I recommend expanding the information provided to sports students, particularly to facilitate the coordination of sports activities and academic obligations, thereby supporting optimal time management.

**VI.** I recommend organizing a student physical activity competition, initially motivated externally, which over time may foster intrinsic motivation and promote regular exercise.

**VII.** I recommend repeated communication of the above initiatives through online platforms, the university's administrative system (Neptun), and courses, involving the Student Government to reach a wider student audience.

**VIII.** I recommend administering questionnaires on health-conscious behavior at the start of university studies, at the end of the fourth semester, and upon graduation, to monitor students' development and lifestyle changes.

**IX.** I recommend extending the research by including additional variables and collaborating with other higher education institutions to enhance the generalizability of the findings.

**X.** I recommend the multidisciplinary development of the research by integrating health and sports sciences, including anthropometric and physical assessments, thereby increasing the effectiveness and practical applicability of preventive strategies.

## 9. Summary

My research examined first-year university students' mental health, physical activity, body awareness, and motivation for healthy nutrition, with particular attention to the differences between sports and non-sports students. The results indicate that, in certain respects, sports students exhibited more favorable health-conscious behaviors compared to their non-sports peers, although not all measured dimensions showed significant differences. Based on the analysis, it is justified to implement programs for all first-year students that support adaptation to the new university environment—albeit with differing motivations—and that effectively convey and reinforce health-related knowledge. The Lifelong Pilates method serves as an example of a body-awareness-promoting activity that can be easily integrated into daily life, highlighting the importance of motivation and conscious engagement to ensure sustainability.

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