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The Role of Well-Being as a Value in Students' Health-Conscious Lifestyles in the Context of the Role of Daily Physical Education

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A) conception and design of the study
B) acquisition of data
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Abstract

The Geneva Charter for Well-being (2021) states that for the health and well-being of the planet, society, community and individuals, we must support changes in social structures that help people take control of their own lives and health. The crisis of sport and health as values may also indirectly affect the value preferences of the younger generation regarding their lifestyle choices and the vision of society. The research investigates the impact of value transfer beyond the apparent boundaries of sport on the lifestyle and well-being of university students who regularly participate in sport and those who are physically passive. 1521 students learning at the University of Debrecen and the University of Nyíregyháza completed our online questionnaire, which integrated questions on socio-demographic background, physical health status, mental status, stress workload, risk index, physical activity index, eating patterns and value preferences. Univariate and multivariate analysis methods were applied. Our study values suggest an increasing search for a sense of safety in the age group, independent of sporting activity (this may also raise questions about the social background of the disadvantaged region). Our results show that students mainly emphasised the "open" or post-material value dimension of individual autonomy in the relationship between sports activity and value orientation. A complex mechanism of action can be experienced when examining value orientations, so we cannot show any causal links in our analysis. This study highlights the complex relationships between personal values and health behaviours among university students. It reveals that material, traditional and autonomy-oriented values influence health perceptions and certain lifestyle choices The relevance and novelty of our study is that the new generation of students who have already participated in the new implementation process in physical education and who have already been involved in the public education system has not yet been studied from this point of view.

Keywords: higher education, value orientation, sporting activity, physical education

Introduction

The impact of physical activity on physical, mental and social health has been re-evaluated(?) around the world. The outbreak and spread of the coronavirus epidemic (COVID-19) has increased the importance of an active lifestyle. There is now no question that sport is a key tool for achieving balance and harmony, and that it is an asset for the preservation and development of health (WHO, 2024; Pikó & Keresztes, 2007).

Health behaviour and the components of a healthy lifestyle are influenced by a number of factors, including age. Physical activity is still an everyday part of children's lives (Keresztes et al., 2014), but it is increasingly neglected as they grow older (Földesiné, 2008; Karsai et al., 2013). In young adulthood, when independent living begins, physical activity decreases even more due to the significant changes and events that occur (Aira et al., 2032; Ádám et al., 2018). An important question today is the extent to which the upcoming generation will be able to become a physically and mentally decisive part of a healthy society (Seregi et al., 2019). Educational institutions have traditionally played a major role in the development of a healthy lifestyle; therefore, it is essential that regular physical activity is a value in schools, and that a positive attitude and commitment to it is developed in students. In this light, schools can be considered as an important arena for the development of health-conscious attitudes (Somhegyi, 2012). Among the elements of personal development offered by public education, education for health and the meaningful use of leisure time is also an important value (Fancourt et al., 2021; Fredriksson et al, 2018; Csányi & Révész, 2015). This also applies to higher education, although neither the pedagogical nor the institutional background is fully developed.

The main inquiry revolves around the factors at the micro, meso, and macro levels that impact students' physical activity, health behaviours and academic performance, as well as the potential role of daily physical education in promoting health. In this study, we aimed to focus on one side of this big picture. Our study concerns the role of daily physical education and its relationship with personal values, influencing students' health behaviours and academic performance. This study aims to examine how daily physical education influences university students' value orientations—including autonomy, materialism and traditionalism—and how these values, in turn, impact their health behaviours and academic performance.

A CDC paper published in 1996 highlighted the complexity of the health risks posed by physical inactivity in the world's population (Physical Activity and Health, 2014). The predicted negative phenomena have been addressed at the governmental level in many countries (Davis, 1998). However, a perfect solution to the problem has yet to be found, supported by several follow-up studies (Bruce & Katzmarzyk, 2002; Jaret, 2002; Fu et al., 2012). According to the research conducted by Jákó (2012) and Fritz (2019), it has been established that for Health-enhancing physical activity (HEPA) (WHO, 2007) to become a regular practice in society, it is crucial for young individuals to perceive it as a natural activity rather than an obligatory one (Fritz, 2019). This shift in perception is further justified by a nationwide study which demonstrates that the utilisation of physical activity as a lifestyle choice can be accurately predicted based on factors such as place of residence, education, income, and age (Urbán & Hann, 2003). This suggests that a lifestyle change is not a self-evident concept for young people leaving the world of formal education. Risk-taking behaviours are becoming increasingly common. Therefore, developing a general and effective prevention system is essential to increase young people's health awareness and desire to participate in sports (van Sluijs et al., 2021; Németh & Költő, 2011). Bábosik (2004, p. 12) has formulated his educational theory on the subject: 'of all the behaviours that are important for maintaining health, physical activity should be emphasised above all'.

Social Psychological Understanding of the Social Context of Health and Sport

Socialisation does not take place in a vacuum but is embedded in an environment, so the development of the individual is always within a given culture. We consider the phenomenon of ethos, which emerges and operates in society and sport, and the interplay between these two spheres to be paramount for social inclusion (Blackshaw et al., 2004). This means it is a relevant concept and has a role in all societies (Ancsel, 1984). By ethos, we mean those patterns of behaviour that are both organised around and grounded in a particular set of values rather than being merely observers and evaluators of those values. Ethos is thus a human manifestation that affects others while guiding the person who acts. Ethos can be one of the key concepts in the study of the role of everyday physical education because we wanted to understand what ethos sport, as a social milieu and form of behaviour, follows and what ethos it has created for its participants. Ethos does not only mean an individual pattern of behaviour. This raises the question of how sport, as a social institution with its basic norms, fits into the social strata that make up its environment. Society produces very diverse, hierarchical and often conflicting ethos. Different social strata and subcultures generate a different ethos. However, society always has a dominant, validated ethos pattern that is valid for others. Sport, by its very nature, is distant from the dominant ethos. This is because it is often oriented towards specific, extreme achievements, partly because these are difficult to achieve through the usual, everyday forms of activity.

The different linkages of sport to society also describe social relations, and sport and society should therefore be considered together, with one being an independent variable in the analysis of the other. The analysis of social organisation and education systems must be addressed in the social integration of sport (Vingender, 2017). Several social psychological models of teaching/learning institutional systems (Hodgkinson, 1978, 1983; Getzels & Guba, 1957; Getzels & Thelen, 1960) have been developed to reconcile organisational elements and personal values in institutions.

Among these, we would like to take the Getzels-Thelen model as a starting point. According to this model, there are two broad dimensions of social systems: individual and institutional levels. The conflict between the formal goals (I) formulated by society and the attitudes (IV) learned during socialisation can be the problem in the individual's behaviour. Both dimensions aim at effectiveness and efficiency. That is, institutional and personal interests must prevail in the individual's life. Let us consider the importance of health promotion and, in particular, the role of physical activity. We must look at where the central conflict may lie regarding the dimensions of institution-self, role-personality, and expectation-attitude (disposition).

There should be no conflict between institutional and individual values in recognising regular physical activity, as medical and sports science have proven their justification. The role of the state as an institution in health promotion is justified. However, we can see that the environment shaped by society does not operate according to the same norms (ethos). Although our country is the only one in Europe to have introduced daily physical education in public education, the consumer society's value system, which favours materialism, is coupled with a less developed health consciousness (Isham et al., 2022; Pikó, 2005; Pluhár et al., 2003), which hinders the adoption of an active lifestyle. The motivation to exercise regularly and for this to become a lifestyle requires an ideal ratio of extrinsic and intrinsic incentives. When intrinsic motivation predominates, it benefits attitudes towards sport and strengthens the intention to maintain and possibly improve health (Deci & Ryan, 1985). From the triad of money, leisure and attitude, which studies have shown to be prerequisites for choosing recreational sports activities (Budai, 1999; Laki & Nyerges, 2000), the attitude has a direct impact on the choice of recreational sports (Paár, 2010). This is where the problem of the conflict between institutional roles and the individual within the Getzels-Thelen social model can be discovered. Changing attitudes has a profound social and cultural history and needs to be implemented over several generations before it can have an impact.

When analysing the literature, it is worth introducing the key differences in sports ethos between urban and rural populations. Urban students generally report higher levels of sports participation compared to their rural counterparts, which is attributed to better access to facilities, extracurricular sports programmes and community activities in urban areas. Also, rural populations face structural barriers, such as fewer sports facilities and organised activities, which may lead to lower engagement in physical activity (Kovács, 2022). Moreover, urban students often exhibit healthier eating patterns but also engage in riskier behaviours, potentially reflecting a broader emphasis on autonomy and individual freedom. Rural students tend to have lower health-risk behaviours due to adherence to traditional norms but are less proactive in adopting health measures such as structured fitness routines or balanced diets (Levin, 2014; Reyna & Farley, 2006). Besides these factors, urban environments offer diverse peer and institutional support, fostering a competitive ethos in sports while rural communities rely more on familial or communal bonds for motivation, which may emphasise collective activities over competitive or individual pursuits (Doherty & Taylor, 2007).

Since all socialisation effects are mediated through the young person's cognitive filter, it is important to pay attention to the cognitive components of socialisation agents. Thus, parents' previous experiences, goals and health awareness becomes a determining factor. The strata of society living at different levels in diverse societies also have their cultural patterns, i.e. their perceptions of society and their position in it. No judgement should be made about the cultural model of any stratum (dominant or minority) since it is all based on experiences and events inherited from the narrow environment. These differences within a society may explain the particularities associated with disadvantaged groups. They may also underlie, for example, differences and problems in school socialisation and achievement (Ogbu, 1981, 1990).

Despite extensive research on health behaviour and physical education, few studies have investigated the intersection of value orientations—such as materialism, traditionalism and autonomy—and their influence on health behaviours and academic performance in university settings. Previous work has usually focused on the physical outcomes of physical activity, neglecting the role of personal values in shaping long-term health-conscious behaviours. Additionally, while material values have been linked to lifestyle decisions, their specific impact within the framework of daily physical education remains underexplored (Granero-Jiménez et al., 2022). This study addresses these gaps by examining a population that has experienced recent reforms in physical education, providing insights into the cultural and psychological dimensions of health behaviours not previously investigated.

The Role of Daily Physical Education

Following this view, the Hungarian Act CXC of 2011 on Public Education introduced compulsory daily physical education, and its introduction began progressively in the 2012/13 school year. The consolidation of physical activity in everyday life should start in childhood and may be the key to establishing a healthy lifestyle for the future (Bergier et al., 2014). Data on obesity and overweight in the adult population of Hungary reaffirms the significance of incorporating daily physical education. The Obesity Update 2017, released by the OECD, reveals that Hungary is in fourth position globally, with over 30% of adults falling into the obese category.

Since the introduction of daily physical education in 2012 and the subsequent change in perspective, the outcomes have been varied. While there has been noticeable enhancement in students' cardiovascular fitness and stamina, the fight against obesity has not experienced the same level of advancement. It is imperative to acknowledge that nutrition is just as vital as physical activity in addressing this issue, requiring individuals to make deliberate and health-conscious decisions. Additionally, changes in parenting practices and consumption habits have been widely acknowledged. However, existing research on the impact of daily physical education in education has primarily focused on initial experiences, as evidenced by publications from Vári et al. (2012), Fintor (2019), Nagy et al. (2018), Müller et al. (2018), and Moravecz (2018). According to Fintor's (2016) study conducted in the North Great Plain region, a considerable number of students expressed their satisfaction with the implementation of everyday physical education. An impressive 95% of pupils reported enjoying this subject, while both school leaders and parents recognised the importance of its introduction (Urbinné Borbély, 2018). Fintor's research focused on exploring the connection between health-conscious behaviour and daily physical education. The author highlighted how this positively impacts students' engagement in extracurricular sports activities, which in turn contributes to their lifelong participation in sports even after graduating (Fintor, 2019). These findings served as the foundation for our own investigation. It is crucial to prioritise the improvement of young people's health in disadvantaged regions, as it holds strategic significance for individuals, society and the micro- and macro-environment. Considering the importance of having a healthy lifestyle, which encompasses physical activity, nutrition and mental well-being, it is crucial to view it as a long-term investment. By investing in one's health at the right age and through appropriate methods, both the individual and the national economy can reap the benefits. The impact of this investment is particularly significant for today's students, who will soon enter the workforce and establish families. The accumulation of "health capital" during their formative years will greatly influence their overall well-being throughout their lives. Several studies conducted in Hungary have explored the relationship between health behaviour, academic performance and university-age students (Nagy, 2010; Kovács, 2015b; Vajda et al., 2018; Müller et al., 2018; Pfau et al., 2019). However, this present study stands out as it delves into the micro, meso, and macro levels of health and academic performance, offering a unique perspective compared to previous research.

Daily physical education introduced in Hungary aligns with the Geneva Charter's (2021) focus on institutional reform to promote health and well-being. The Charter's emphasis on enabling well-being through education and community empowerment is visible in Hungary's policy, aiming to integrate physical activity as a lifelong habit starting in childhood. The Charter also supports equity in health promotion, which is also in line with Hungary's focus on disadvantaged regions. The integration of daily physical education in such areas has the potential to reduce socio-economic disparities in health behaviours, provided there is sufficient infrastructural and resource support.

Previous research has shown that in a consumer society, where material values are prioritised, public thinking is associated with lower levels of health awareness (Isham et al., 2022; Pikó, 2000; Pikó et al., 2004), hindering active lifestyles. Daily physical education was introduced with the aim of improving students' physical health by providing opportunities for participating in sporting activities every day. This improvement includes not only physical activity but other health-protecting behaviours as well, which may lead to a shift in personal values. We wanted to evaluate this relationship, with the addition that a value system emphasising individual autonomy, as opposed to materialistic values, increases the chances of a health-conscious lifestyle. This study examines the role of daily physical education as a policy tool to promote health-conscious behaviours in students, exploring its interaction with societal value systems and individual autonomy. By focusing on institutional/national reforms, such as daily physical education, this research contextualises how personal values mediate health and academic outcomes. The following research question was formulated: How do participation in and satisfaction with daily physical education and personal values influence students' health behaviour (physical activity, physical and mental health, risk factors – smoking, alcohol, drugs, stress, nutrition) and academic performance?

> H1: We hypothesise that more favourable health behaviours are also influenced by personal values: students with "open" (*Perényi, 2010a, 2010b; 2011),* individual autonomous values are more likely to be health conscious, while students with materialistic values are less likely to be health conscious. *In a consumer society, a value system prioritising materialism is associated with less developed health awareness (Isham et al., 2022; Pluhár et al., 2004; Pikó, 2008), an obstacle to pursuing an active lifestyle.*

Methods

Sample

The current study focuses on one part of a larger research project measuring the role of daily physical education among university students. Data was collected in two waves using an online self-completion questionnaire.

A hybrid approach combining stratified sampling and random sampling was adopted. The first wave occurred between May 2018 and February 2019, and the second occurred between September and November 2019. The online questionnaire was programmed using the EvaSys system. Students from the Northern Hungary region, the University of Debrecen and the University of Nyíregyháza participated in the research. These universities are the most prominent universities in the North Great Plain region, which is why they were chosen. Also, students from the region were enrolled in the two institutions from secondary schools with a similar composition, so the social background variables relevant to our study may be closely controlled. The questionnaires were forwarded to the students by the faculty deans' offices of the universities via the Neptun mail system, and the questionnaire was completed anonymously and voluntarily. A total of 1521 eligible respondents (after data cleaning) responded to the questionnaire.

37% of the respondents to the survey were men, and 63% were women. Most respondents were under 23 (60%), but there is also a strong age group of 24–29 years olds (24%). 30–39-year-olds and those aged 40 or over comprise 7% of the sample. The respondents' age also indicates that the majority (80%) completed their secondary education after 2012. 51% of the sample participated in daily physical education. The respondents' type of municipality of residence indicates a more urban composition of students. Forty per cent of respondents live in a county town, 38 per cent live in a small town, and 20 per cent live in a municipality. Only 2% of the sample live in the capital.

In terms of parents' educational attainment, the mother's educational attainment is higher than the father's in several cases. Between 5 and 6 per cent of respondents have a parent with up to 8 years of schooling, 17 per cent have a mother, and 29 per cent have a father with a vocational or technical school certificate. The proportion of respondents with mothers with a high school diploma is 37%, and the proportion of respondents with fathers with a high school diploma is 35%. Mothers with a high school diploma are also found in higher proportions than fathers (40% vs. 31%). When the higher level of educational attainment of mothers and fathers is taken into account, the pattern indicates a robust transmission of cultural capital among students: less than one-fifth of respondents (18%) have parents who have not graduated from high school, 34% have at least a high school diploma and 47% have at least one parent with a degree.

Regarding their socio-economic status, 21% of the students surveyed reported having a very good financial situation, with no financial problems. The majority of the sample (59%) consider themselves to be in a good situation, with a regular income at the end of each month. Nearly a fifth of the sample are in a less favourable situation, with their income just covering their expenses. Only 2% consider their financial situation to be terrible.

Regarding the field of study, the relative majority (23%) of students in the survey are studying in a medical or health science field, and 20% are studying in a technical field. The proportion of students in the natural sciences is 11%, and the proportion of students in the humanities is 10%. Other relatively significant proportions are in education (8%), sport and economics (7%), agricultural sciences (6%) and law and management. The share of students in other disciplines is below the 5% threshold.

Measures

This study adhered to ethical research standards and the research was conducted in accordance with the Declaration of Helsinki. All participants provided informed consent before completing the questionnaire. They were informed about the study's purpose, the voluntary nature of their participation, and their right to withdraw at any time without consequences. Data were collected anonymously. Personal identifiers were excluded from the dataset, and access to the data was restricted to the research team.

The questionnaire had several blocks of questions, including questions related to socio-demographic background, health, health-behaviour, health-conscientiousness, health-promotion, and academic achievement.

- The *socio-demographic background* block incorporated gender, age, year of school-leaving exam, university, current major, level of education (bachelor, master's, undivided), finance type (full-time, part-time), type of settlement (capital, county seat, big city, small city, town), mother's and father's education (less than primary level, primary level, technical education without school-leaving certificate, secondary grammar school with school-leaving certificate, secondary school with school-leaving certificate, college, university, doctoral studies), subjective financial status (excellent, good, fair, poor), objective financial status (owning the following: smart phone, laptop/computer, own car, own flat, smart television, dishwasher, air conditioning, game console, home cinema, weekend house).
- The *physical health status* of the participants was measured on a 5-point Likert scale (1=extremely poor, 5=excellent) with the following question: *How would you evaluate your physical health?*
- The *mental state* was measured by the WHO Well-being Inventory (Susánszky et al., 2006). The statements are to be answered on a four-point Likert scale (0 = not at all characteristic, 3 = completely characteristic). The original reliability of the questionnaire is high, Cronbach's $\alpha = 0.85$.

- The *fitness status* of the participants was measured on a 5-point Likert scale (1=extremely poor, 5=excellent) with the following question: *How would you evaluate your fitness status?*
- A stress index was calculated based on the questions focusing on potential issues leading to stress (What are the biggest causes of stress for you? time management problems, loneliness and lack of a partner, integration into university life, learning difficulties, financial problems – yes/no)
- A *risk index* was developed based on the frequency of smoking (How often do you smoke? never/ rarely/one pack of cigarettes per week/more packs per week), alcohol consumption (How often do you consume alcohol? never/rarely small amount/ rarely large amount/regularly small amount/regularly large amount), and substance use (Have you ever tried any kind of illegal substance? yes/ no) by principal component analysis.
- A *physical activity index* was created based on questions concerning sporting habits (What kind of sports do you pursue (individual/team/ nothing)? At what level do you pursue sport (recreational/competitive)? In addition to the compulsory physical education course, how often have you done intensive sports activities lasting at least 45 minutes in the recent past (3 or more times a week/ 1–2 times a week/several times a month/several times a year/ 1–2 times a year/ never)?
- A *healthy-eating index* was created based on questions related to eating and drinking habits (How much fluid do you drink a day (by litre)? How much water do you drink a day (glasses)? Do you think you have a healthy diet (yes/no)? Do you need to follow a diet (yes/no)?
- Concerning *value preferences*, a self-designed block of questions was used. We asked the participants to rate various life domains on a 5-point Likert scale by the following statement: How important are the following in your life? The following domains were measured: family safety, inner harmony, public life, the cultivation of traditions, religious faith, friendship, material goods, and freedom. The block of self-designed questions assessing value preferences was developed based on existing theoretical frameworks and literature on value orientation. Prior to the main data collection, the questions were pilot tested on a small group of participants (N=25) similar to the target population to ensure clarity, relevance and reliability. Feedback from the pilot testing was used to finalise the questionnaire. Internal consistency was evaluated using Cronbach's alpha (>0.70) ensuring that the self-designed measure was both reliable and appropriate.

Recognising the sensitivity of questions related to substance use, financial status, and personal health behaviours, measures were taken to minimise social desirability bias in the data collection process. The online, anonymous nature of the questionnaire aimed to create a non-judgemental environment, encouraging participants to respond honestly. Participants were explicitly informed that their responses would remain confidential and used solely for research purposes. Also, the questionnaire was worded indirectly in the areas of sensitive questioning and used established scales to make the measure valid wherever possible.

Statistical Procedures Used

The data follow normal distribution based on the results of the Kolmogorov-Smirnov normality test ($p>0.05$). The analysis uses both univariate and multivariate analysis methods: frequency tables, cross-tabulations and group averages, analysis of variance, linear regression analysis, binary logistic regression analysis, and multivariate scaling. The essential parameters and relevant statistical indicators of the procedures used are reported in the rows or below the graphs or tables. In the case of cross-tabulations, where relevant, observed frequencies are underlined to consider the values of the adjusted residuals (values of the adjusted residual below -2 and above +2 are indicated). For all statistical tests, a margin of error of $p<0.05$ was considered in the analysis. Data were processed using SPSS software.

Results

Value Dimensions and Value Groups

Recent research in Hungary also points to the central theme of the study, which is that people's values are related to their attitudes and habits towards sports. Perényi (2008, 2010a, 2010b, 2010c) and Kovács (2013) investigated the impact of sporting activities on the values of the entire young Hungarian population and among university students in Debrecen. Taking these studies as a starting point, our research attempted to measure what values respondents considered essential and less important by asking a short series of questions. Eight different values were listed on a Likert scale: family safety, inner harmony, public life, respect for traditions, religious faith, friendship, material goods and freedom. The response options were available on a scale of five (not important to me at all – very important to me). The role of values in health education can be embedding discussions on personal values (e.g. autonomy or tradition) into health curricula can contextualise health promotion, making

it more relatable to students' priorities, and addressing materialist tendencies could involve linking physical activity to career or financial success, appealing to pragmatic motivations. In terms of equality, recognising the influence of socio-demographic disparities (e.g. urban vs. rural, financial stability) on value orientations can guide targeted policies. For instance, creating inclusive, low-cost health programmes can address the underrepresentation of certain groups in physical activity. Furthermore, aligning public health strategies with cultural and individual values can make interventions more effective and sustainable. For example, incorporating autonomy-supportive learning frameworks in schools may foster a deeper engagement with health behaviours.

Based on the responses, the perception of the eight values can be grouped into three categories. The majority of the students in the sample consider family safety, inner harmony, freedom, and friendship to be the most important values (averaged over a 100-point scale, they score between 85 and 95). Material wealth, public life and the cultivation of traditions are also considered necessary by a relative majority but are of secondary importance (averages range from 54 to 67 points). Religious faith is the value least accepted and, for many, rejected (average score of 41 points). Multidimensional scaling was used to see if there was a stronger relationship between the values. This procedure provides a nuanced way to interpret students' value orientations and their potential influence on health behaviours within the broader educational context. The findings highlight how three principal value dimensions—material, traditional and autonomy-oriented—shape perceptions and behaviours differently, illustrating the complexity of individual and social factors in health education. The stress index of the analysis represents the model's goodness of fit. This value is 0.07, which is low enough This value is 0.07, which is low enough to consider the result as remarkable. The figure below shows the value map (Figure 1).

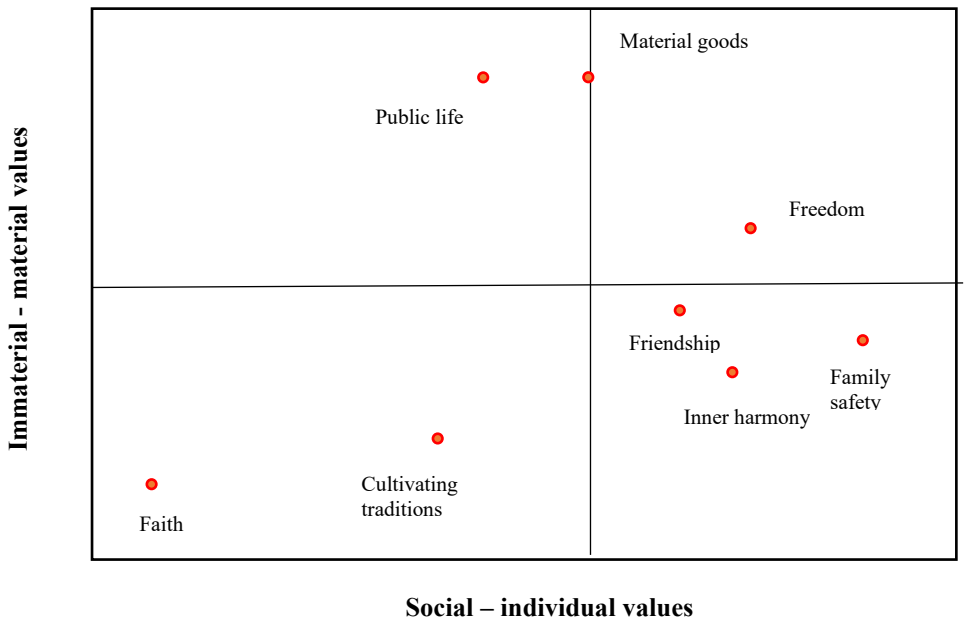

Figure 1. Multidimensional scaling of values (Stress=0.07337 RSQ=0.986)

Values can be represented on a value map using a vertical axis that signifies materiality. Intangible values like religious beliefs are placed on the negative side of the axis, while material values like material goods are placed on the positive side. The horizontal axis is used to separate values based on their nature, with communal values like the cultivation of traditions falling on one side and individual values like inner harmony falling on the other. Communal values are read in the negative field, while individual values are read in the positive field. This value map serves the purpose of distinguishing different dimensions of values. Principal component analysis can be utilised to identify and quantify three such dimensions.

The initial dimension of values revolves around the preference for material possessions. Within this principal component, two variables were taken into account: the significance of public life and the importance placed on material goods. The principal component retains approximately 59% of the original information. Consequently, individuals who score high on this principal component prioritise material values, while those with low scores perceive them as insignificant. On the other hand, the

second dimension of values encompasses traditional values. This principal component is composed of variables such as religious beliefs and the preservation of customs. It retains the highest proportion of information (68%), indicating that it effectively captures the essence of the original variables. The third dimension of values, according to Perényi (2010a; 2010b), is characterised by an "open" or post-material preference for individual autonomy. The retention rate for this information is 52%, which falls within an acceptable range. The principal component emphasises the importance of inner harmony, friendship and freedom. However, the value of "family safety" is not included in any of the principal components. It was decided to exclude this value for two reasons: firstly, almost all respondents identified with it, resulting in minimal statistical variance, and secondly, its inclusion would have expanded the interpretation of the principal component unnecessarily (see Table 1).

Table 1. Value dimensions – parameters for principal component analysis

Value dimension	Values	Municipalities	Variance explained	Mean*
Material values	Public life	.587	59%	65
	Material wealth	.587		
Traditional values	Religious faith	.685	68%	48
	Cultivating traditions	.685		
Individual autonomy	Inner harmony	.572	52%	85
	Friendship	.492		
	Freedom	.496		

** projected on a 100-degree scale*

Based on a scale of one hundred points, the average scores of the main components reveal that the students in the sample primarily align themselves with the value dimension of individual autonomy (scoring 85 points). The second most prominent value dimension, which also holds great importance for the majority, is the pursuit of material goods (scoring 65 points). The third value dimension is associated with traditional values, with an average score of 48 points, indicating a relatively high level of diversity within this dimension. It is worth noting that the individual value dimensions are not completely independent, as evidenced by the significant and meaningful correlations between them. The strongest correlation is observed between individual autonomy and material values (r=.346, p=0.000), which can be classified as a weak to moderate strength association. There is also a significant but relatively weaker correlation between individual autonomy and traditional values (r=.204, p=0.000), as well as between traditional values and material values (r=.203, p=0.000).

The perceptions of different groups of students, based on socio-demographic and educational factors, show minimal variations across each value dimension. Although the results reveal several statistically significant differences, we only emphasise a few notable cases. For instance, students residing in the capital and studying sports science tend to have a higher acceptance of material values. On the other hand, older students and those pursuing teacher-training are more inclined towards traditional values. Interestingly, values associated with individual autonomy are equally valued among all student groups. Surprisingly, the educational level of parents does not significantly impact the values that students deem essential. Furthermore, there is no significant correlation between the dimensions of values and participation in daily physical education or current involvement in sports activities.

By utilising the three dimensions of value, we were able to identify six distinct clusters of attitudes (see Table 2). Our goal was to differentiate groups of students who placed greater emphasis on one value dimension compared to the others. Unfortunately, cluster analysis did not yield clearly defined groups, so we resorted to a more conventional approach. In certain clusters, the differentiating factor was the above-average consideration of one value dimension, while the other two dimensions were below average. The initial group (*rather materialist*) consists of individuals who exhibit a higher level of materialism, with material values being rated above average (group mean: 79 points). On the opposite end of the spectrum, the remaining values are perceived as below average (traditional values 25, individual autonomy 79 points). The second group comprises individuals who lean

towards a more traditionalist mindset (*rather traditional,* group averages: 54, 62, and 76 points), while the third group consists of those who lean towards a more autonomous mindset (*rather autonomous*, 53, 21, 96 points). The fourth group is composed of students who embrace all three value dimensions to a greater extent than average ("*combiners*" 83, 69, 96), while the fifth group comprises individuals who reject all three dimensions ("*rejectors*" 51, 23, and 72 points). Lastly, the sixth group includes students whose opinions do not significantly deviate from the average in any particular attitude group ("*average*" 70, 54, 91 points). The first three groups can be seen as ideal types, representing individuals who strongly emphasise one dimension over the others, distinguishing them from the majority.

Out of the total sample, 6% can be classified as materialistic, 17% as traditionalist, and 8% as autonomous. Combiners make up 16% of the surveyed students, while rejectors account for 19%. Approximately 32% of the sample falls into another category, with an additional 2% unable to be classified due to non-response. Notably, certain socio-demographic groups exhibit a significant over- or under-representation of specific value systems. Those residing in the capital, individuals with parents who have only completed primary education, and students with backgrounds in economics, law, and agriculture tend to have a higher proportion of materialistic values. On the other hand, traditionalists are more prevalent among individuals aged 30 and above, those living in communes, individuals from skilled worker backgrounds, students

Table 2. The characteristics of the clusters

Cluster	Characteristics	Possible implications for health promotion
Materialist Cluster	Prioritises material wealth and public life. These students have higher health-risk behaviours but perceive themselves as healthy and engage in relatively healthy eating habits.	Design health programmes that connect material success to well-being (e.g. framing physical fitness as a pathway to career success). Offer incentives to material achievements, such as certificates for participation or competitions.
Traditionalist Cluster	Emphasises religious faith and respect for traditions. This group has lower risk behaviours but also lower engagement in proactive health measures, such as fitness or healthy eating.	Use cultural and community-based approaches to engage these students, such as incorporating traditional games or culturally significant activities into physical education. Highlight the role of fitness in preserving and honouring one's body as part of traditional values.
Autonomous Cluster	Values inner harmony, freedom and friendship. These students report better fitness and healthier diets but engage in higher risk behaviours, likely reflecting their value on independence.	Offer autonomy-supportive activities that allow for choice and self-direction, such as personalised fitness plans or independent goal-setting modules. Encourage reflective practices (e.g. group discussions) to link their independence with health habits.
Combiners Cluster	Values all three dimensions (materialism, traditionalism, autonomy) strongly. They exhibit the most balanced health behaviours, with low risk indices and healthy dietary habits.	Use this group's peer leaders in promoting balanced health behaviours across the student body. Develop programmes that integrate diverse values, offering holistic approaches to health promotion.
Rejectors Cluster	Rejects all three value dimensions. These students exhibit low fitness levels and are less likely to engage in healthy eating.	Focus on increasing general motivation and interest through engaging, low-barrier activities like gamification or social sports events. Pair these students with mentors or peer coaches who can provide encouragement and guidance.
Average Cluster	Shows average adherence to all three value dimensions, reflecting a moderate approach to health behaviours	Provide general programmes that cater to broad interests and do not rely heavily on value-specific interventions. Use this group as a control to assess the effectiveness of tailored interventions for other clusters.

studying through correspondence, and those pursuing social sciences, agricultural sciences, law and administration, as well as pedagogy and education. Men and science students exhibit a higher-than-average inclination towards individual autonomy. Among the most autonomous and medical students, there is a greater presence of individuals who agree with this preference. Conversely, the least autonomous and engineering students tend to have a higher proportion of individuals who disagree with this preference.

In line with previous research, our findings support the notion that the family is a key indicator of values and significantly influences the younger generation's loss of values after a change in regime. Interestingly, our study revealed that this value resonated with almost all participants, regardless of their level of physical activity. This finding stands in contrast to Perényi's (2008) study, which found that individuals who were physically inactive placed greater importance on 'family safety'.

It is evident from our examination results that there is a growing inclination towards seeking safety among individuals in a particular age group, regardless of their involvement in sports (this also raises questions about the socio-economic background of the disadvantaged region). Notable disparities in sports participation can be observed based on socio-demographic factors. Among students who do not engage in sports, there is an over-representation of women (30%), individuals aged 30-39 (38%), residents of communes (29%), and those whose parents do not possess a school leaving certificate (62% and 31%, respectively), as well as those who perceive themselves to be in challenging financial circumstances. On the other hand, competitive sports are predominantly associated with men (22%), individuals aged 23 or younger (22%), individuals with a university degree (22%), and those in very good financial situations (28%). It is important to note that there is no significant correlation between wealth and sports participation. According to Fábri (2002), the decisive factor influencing sports participation at this age is not financial situation but rather lifestyle changes. In terms of the relationship between sporting activity and value orientation, the students in the sample primarily identify with an 'open' or post-material value dimension that emphasises individual autonomy. This finding is consistent with previous research conducted by Kovács (2013) and Perényi (2008). The importance of material goods ranks second, while traditional values rank third. There is no significant difference in the acceptance of post-material values between different socio-demographic and study groups of students. However, variations do exist when it comes to the importance placed on material values. Students who engage in daily physical education tend to view material values as slightly more critical compared to those who do not participate. While the variance may be minimal, there exists a noteworthy distinction in the significance attributed to values pertaining to the post-material dimension among participants. The importance of these values remains consistent regardless of whether individuals engage in sports or the level at which they participate. Analysing value orientations reveals a multi-faceted mechanism at play, urging us to exercise caution in drawing conclusions, as causality cannot be definitively proven in our analysis.

The Relationship Between Health Behaviour Factors and Personal Value Dimensions and Value Groups

In Table 3 below, we summarise the correlations between the individual value dimensions and the students belonging to the individual value groups according to the characteristics of health awareness and health behaviour examined so far. There is a significant positive correlation between material values and health, mental health and fitness, i.e. the more material values someone has, the more favourable they perceive their health, mental health, and fitness to be. However, the correlation coefficients are very low, so although the correlation is significant, there is no meaningful correlation. Acceptance of traditional values is associated with mental health and the risk index: those who accept traditional values tend to report better mental health and lower levels of health risk behaviours. However, the strength of the associations is very weak. Individual autonomy shows a significant positive relationship with health and fitness status, but the relationship is weak again. It is also characteristic that none of the value dimensions show a relationship with the physical activity index (i.e. the value dimension in which one "thinks", which one considers important), which does not lead to a more or less active lifestyle. Unsurprisingly, there is no relationship between stress levels and the value dimensions, nor is there a significant relationship between healthy eating and these dimensions.

Looking at the individual health status and health behaviour indicators within each value group, we find significant differences between student groups in several cases. Among those with more traditionalist values, the risk index is low (i.e. as we have seen for the dimensions, they are less likely to smoke, drink alcohol or try drugs), they are less fit, and they have a significantly lower proportion of those who say they eat healthily. Those who attach more importance to the values of individual autonomy reported better fitness and a higher level of health consciousness regarding diet, while their risk index was high. Those with more materialistic values perceive their health as good, with no more extreme values in the other dimensions measured. The group of value-seekers is characterised by good health and mental well-being, a low risk index and a relatively high proportion of healthy diets. Rejectors have a poor fitness level and a low proportion of healthy eaters.

The weak correlations between autonomy-oriented values and physical activity imply a nuanced role for these values in shaping health behaviours (Eather et al., 2023). This may be useful in designing interventions that provide choices, encouraging students to select physical activities aligned with their personal interests and values. This autonomy-supportive strategy could indirectly increase motivation and engagement despite the weak direct correlation. Also, these results may be beneficial in incorporating reflective activities where students explore how autonomy and freedom can lead to enhanced health outcomes. For example, group discussions can help internalise the connection between autonomy and physical activity. Also, creating programmes that foster autonomy while encouraging community involvement (e.g. team sports with flexible roles) can reinforce autonomy while embedding social motivation (Coatsworth & Conroy, 2009).

Table 3. Relationship between health behaviour factors and personal value dimensions and value groups

	Value dimensions**			Value groups***					
	material values	traditional values	values of individual autonomy	rather materialistic	rather traditionalists	rather autonomous	combiners	rejectors	average
Health status	.153	*	.157	4.10	3.90	3.97	4.11	3.76	3.98
Mental state	.220	.206	*	3.62	3.50	3.60	3.80	3.21	3.67
Fitness status	.109	*	.064	3.26	3.23	3.66	3.43	3.22	3.36
Stress workload	*	*	*	*	*	*	*	*	*
Risk index	*	-.183	*	0.10	-0.14	0.18	-0.15	0.04	0.08
Physical activity index	*	*	*	*	*	*	*	*	*
Healthy eaters	*	*	*	60%	44%	71%	67%	39%	60%

**not significant (p>0.05)*

***In the table are the index averages for healthy eaters and the correlation coefficients for the other rows*

****The table shows the prevalence rates among healthy eaters and the averages of the indices for the other rows*

However, the results so far are not entirely sufficient to test our hypothesis. The hypothesised relationship is between values and health awareness and their impact on physical activity. Only two of the health behaviours measured narrowly correspond to health awareness: the risk index (the extent to which the respondent engages in health risk behaviours) and whether or not he/she eats healthily. Linear regression analysis was used to examine whether each value dimension's acceptability significantly influenced the development of the risk index (Table 4). We hypothesised that material values would show a positive relationship with the risk index (i.e. those less likely to have this value dimension would be less likely to harm themselves). The model, although significant, has little explanatory power (the adjusted R^2 is only 4%) and shows a significant relationship between two value dimensions: acceptance of traditional values decreases (Beta=-.195, Sig=0.000), and acceptance of material values increases (Beta=.081, Sig=0.002) the high values of the risk index. Therefore, autonomy-oriented students reported better fitness and healthier diets but also higher engagement in risk behaviours. This reflects a paradox where valuing independence fosters proactive health measures but may also lead to permissive attitudes toward risky actions. The duality suggests that autonomy, while promoting health-conscious behaviours, may also justify risk-taking as a form of self-expression or freedom (Ahn & Kim, 2022). Besides this, students with traditional values exhibited lower engagement in health-risk behaviours but were also less likely to adopt proactive health measures like fitness routines or healthy eating. This divergence highlights that traditionalism may reduce exposure to risk behaviours due to adherence to norms but does not necessarily translate into active health promotion (Greene et al., 2011).

The relationship between healthy eating and attitudinal dimensions was examined using logistic regression,

where the dependent variable was diet, and the value dimensions were the explanatory variables. The model was also significant in this case but had low explanatory power (Nagelkerke $R^{2=0}$.051). The model showed that neither material values nor the acceptance of traditional values had a significant relationship with whether or not one eats healthily (or more precisely, whether one believes/believes in it). Only individual autonomy shows some correlation: the more one accepts values that emphasise individual autonomy, the more likely one is (Exp(β)=1.028, Sig=0.000) to eat healthily or to perceive it as such. However, it is worth validating the models by including other explanatory variables, as values may be related to other socio-demographic and health behaviour parameters, so it is far from certain that the very weak relationship above will hold in light of these. The linear regression model of the risk index for the relationship between health-damaging behaviours shows the relationships already noted. Gender (males are at higher risk), social status (those with low status are at higher risk), the pursuit of sports-related studies (those who do are at lower risk), a socialisation pattern related to family sports participation (if there is a pattern, it reduces risk), mental health status (the more favourable, the lower the risk), and physical activity level (the more active one is, the more risky the behaviour) influence the values of the index. In addition to these influencing factors, two value dimensions "fit" the model: accepting traditional and material values. The former decreases (Beta=-.121) and the latter increases (Beta=.092) the probability of high risk-index values. In essence, we can see that the other variables included have not significantly changed the role of values, which may still be significant determinants.

Table 4. Factors affecting the risk index – parameters for linear regression analysis

	R	**Adj R^2**	**Std.Error**	**Durbin-Watson test**	
Model	.304	,085	0,647	1,989	
	Sum of Squares	**df**	**Mean square**	**F**	**Sig.**
Regression	42.236	8	5.279	12.587	0.000
Residual	413.507	986	.419		
Total	455.742	994			
	Unstandardised Coefficients		**Standardised Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
Constant	-.248	.165	-	-1.506	0.132
Not	.198	.046	.142	4.299	0.000
social status	.066	.017	.124	3.869	0.000
family effect	.058	.022	.085	2.641	0.008
sports studies	-.221	.063	-.114	-3.530	0.000
physical activity index	.056	.015	.135	3.819	0.000
mental state	-.092	.036	-.085	-2.532	0.011
traditional values	-.003	.001	-.121	-3.789	0.000
material values	.004	.001	.092	2.865	0.004

Method: stepwise

Explained variable: risk index (smoking, alcohol consumption, drug use)

Explanatory variables included health status, mental status, fitness status, stress load, physical activity index, family effect*, peer* effect*, healthy diet (dummy), competitive sport (dummy), sport science studies (dummy), gender (dummy), age, social status, material values, traditional values, individual autonomy values*

The effects of two explanatory variables stand out in the logistic regression model explaining healthy eating (Table 5). One is fitness status (the better, the greater the chance of healthy eating), the other is mental status (the more favourable, the greater the chance of healthy eating). Health status, stress levels, physical activity and competitive sports are also significantly affected. Among the value dimensions, material values (Exp(β)=1.012, Sig=0.021) and values reflecting the acceptance of individual autonomy (Exp(β)=1.020, Sig=0.003) have a significant effect: accepting both value dimensions increases the odds of eating healthily, or at least the belief in doing so. The fact that the material values also show a significant positive influence is a questionable result. While material values are often associated with health-risk behaviours, the findings revealed a surprising positive correlation between material values and healthier eating habits. This suggests that students valuing material success might prioritise their diet as part of their personal appearance or well-being, potentially leveraging resources for better food choices. This counterintuitive relationship underlines the significant role of materialism in promoting certain health behaviours despite its broader association with risk (Silva et al., 2023).

Table 5. Factors influencing healthy eating, main parameters of binary logistic regression analysis

Dependent variable:	**eats a healthy diet**			
	B	**Forest**	**Sig**	**Exp (B)**
no (male)	-.185	1.203	.273	.831
social status	-.229	2.959	.085	.796
age	.011	.630	.427	1.011
mental state	.832	28.043	.000	2.299
fitness status	.953	69.738	.000	2.592
health status	-.267	5.016	.025	.765
stress workload	.178	6.722	.010	1.194
risk index	-.073	.397	.529	.929
competitive sport (yes)	-.669	7.703	.006	.512
sport studies (yes)	-.464	3.661	.056	.629
physical activity index	.134	4.584	.032	1.144
material values	.012	5.289	.021	1.012
traditional values	.002	.573	.449	1.002
values of individual autonomy	.020	8.719	.003	1.020
Constans	-7.208	47.148	.000	.001
Chi²	257.103 (Sig=.000)			
Negelkerke R²	.305			

Method: Enter

Explained variable: eat a healthy diet (1: yes, 2: no)

Explanatory variables included: health status, mental status, fitness status, stress load, physical activity index, family effect, peer effect, risk index, competitive sport (dummy), sport studies (dummy), gender (dummy), age, social status, material values, traditional values, individual autonomy values

To summarise the above, we can say that, albeit to a small extent, the acceptance of material values is associated with higher health behavioural risks (lower health awareness) but also increases the chances of eating healthily. The latter is slightly more likely to be increased by adopting values representing individual autonomy, but this does not affect the practice of risk elements. Adopting traditional values reduces the incidence of risk factors but has no significant effect on eating habits.

Factors Affecting Physical Activity

In the following, we have examined how different health behavioural characteristics influence physical activity. It was hypothesised that personal values would also influence the extent to which someone would lead a sedentary or sedentary lifestyle. Linear regression analysis examined the relationship between the variables (Table 6). The model's explanatory power is high enough (35%) to provide meaningful explanations. The results

show that several factors positively influence physical activity:

- peer group effect: the more typical it is that the interviewee comes from a sporting background;
- interest in sport: if someone has a strong interest in sport and this is reflected in their studies, i.e. if they are studying sport or physical education (this indicator may be related to the previous one);
- a better self-perception of health (this can be both a result of and condition for physical activity);
- family socialisation: the more likely the respondent athlete comes from a family background;
- be in a positive mental state (this can also be a result of physical activity);
- men;
- eat healthily;
- material values and the
- prefer not to see themselves as being influenced by values of individual autonomy.

As indicated above, we cannot always speak of real explanations, since the independent variables can only sometimes be considered as the apparent cause of physical activity. However, as far as personal values are concerned, I do not, for the time being, assume such a problem: the correlations shown in the model are considered as accurate, true and minor influencing factors.

Overall, our hypothesis was confirmed. The multivariate statistical models showed that adopting material values

Table 6. Factors affecting physical activity – parameters for linear regression analysis

	R	Adj R^2	Std.Error	Durbin-Watson test	
Model	.596	.349	1.310	1.817	
	Sum of Squares	**df**	**Mean square**	**F**	**Sig.**
Regression	933.542	10	93.354	54.409	0.000
Residual	1690.251	985	1.716		
Total	2623.793	995			
	Unstandardised Coefficients		**Standardised Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
Constans	2.796	.356	-	5.049	0.000
contemporary effect	.400	.050	.225	8.048	0.000
sports studies	.966	.126	.208	7.682	0.000
health assessment	.344	.061	.165	5.616	0.000
not	.607	.089	.181	6.804	0.000
family effect	.287	.044	.176	6.522	0.000
material values	-.014	.003	-.145	-5.140	0.000
eats a healthy diet	.449	.089	.137	5.028	0.000
mental state	.260	.081	.100	3.212	.001
values of individual autonomy	-.008	.004	-.063	-2.232	.026

Method: stepwise

Explained variable: physical activity index

Explanatory variables included: health status perception, mental status perception, stress load, risk index, family effect, peer effect, healthy diet (dummy), competitive sport (dummy), sport science studies (dummy), gender (dummy), age, social status, material values, traditional values, individual autonomy values

is associated with the practice of certain health-damaging activities. Therefore, these students are less likely to adopt a health-conscious lifestyle. For students who accept individual autonomy, health-conscious attitudes are most evident in the case of food attention. Regarding material values, the presumably greater availability of information capital and financial resources allows for a pattern of eating-related habits and behaviours that can contribute to improved health behaviour and physical and mental health. A further argument in favour of accepting this

hypothesis is that, in line with the findings in the literature, the adoption of material values is negatively related to physical activity. At the same time, higher acceptance of values promoting individual autonomy is also likely to lead to a more sedentary lifestyle.

Discussion

Our hypothesis posited that personal values play a role in influencing health behaviour indicators. In our research, "ethos" is defined as a pattern of behaviours that springs from specific sets of values. It is defined as an individual articulation and a social formation that drives patterns of behaviour and interaction within sport and beyond. Value dimensions are those wide categories of personal values that shape individual priorities and behaviours and are divided into material, traditional and self-determination. Material values pertain to material goods and quality of life in the public sphere. Traditional values are connected with religious faith and cultural customs. Individual autonomy results from inner harmony, freedom and friendship, reflecting post-material or "open" values.

We hypothesised that students with "open" and individual autonomous values would be more likely to prioritise their health, while those with materialistic values would be less health conscious. The results of our study confirmed this hypothesis. We found that students who embraced materialistic values were more likely to engage in health-damaging activities and were less likely to adopt a health-conscious lifestyle. On the other hand, students who valued individual autonomy exhibited health-conscious attitudes, particularly when it came to their dietary choices. Another supporting factor for our hypothesis is that previous research has shown a negative relationship between adopting material values and engaging in physical activity. In our study, we found that the family is a key factor in g the values of the post-regime change generation. This aligns with previous research conducted by Connaughton et al. (2008) and Eime et al. (2013), where the majority of participants, regardless of their level of physical activity, identified the family as a central value. Interestingly, our findings contradict Perényi's (2008) study, which showed that physically inactive individuals placed higher importance on "family safety". It seems that within our sample, there is a growing emphasis on safety among all age groups, regardless of their involvement in sports (which also raises questions about the influence of social background in disadvantaged regions) (Merkel et al., 2013). Concerning the relationship between sports and values, our results indicate that the students in our sample are closely aligned with the 'open' or post-material value dimension, which emphasises individual autonomy, which is consistent with previous international (Eather et al., 2023; Almagro et al., 2010; Kirk, 2005) and Hungarian studies (Moravecz, 2022; Kovács, 2013; Perényi, 2008).

Harmony, friendship and freedom are the fundamental principles of this particular value system. These values align perfectly with the practice of regular physical activity, as all aspects benefit greatly from engaging in sports on a consistent basis. Physical activity not only fosters personal growth but also promotes a sense of community, serving as a mediator in this process (Di Bartolomeo & Papa, 2019). The findings indicate that it is the activity itself, rather than attitudes, that has a significant impact. Additionally, the significance of material possessions is emphasised as one of the pillars, alongside traditional values. It is worth noting that there is no notable distinction in the adoption of post-material values among different socio-demographic groups and student populations. However, variations do arise when considering the importance placed on material values. Individuals who engaged in daily physical education demonstrate a slightly higher regard for material values compared to those who did not partake. While this disparity is minimal, there is a notable distinction in terms of values associated with the post-material dimension – those who participated view this dimension as slightly more significant. The significance of values remains consistent, regardless of whether respondents engage in sports or the level at which they participate. It is important to exercise caution when drawing conclusions regarding value orientations, as the analysis does not establish causal relationships. However, based on the study sample, it can be concluded that the implementation of daily physical education does not currently play a discernible role in shaping students' physical activity and value systems. We should also note that community engagement can play a pivotal role in enhancing the benefits of daily physical education by fostering an ecosystem of support, motivation and continuity for health-promoting behaviours. Community events and shared spaces for recreational sports can help embed physical activity into the cultural fabric, aligning with the principles and values promoted in schools (Sherlock, 2024). For example, parents and community leaders can model active lifestyles, reinforcing positive behaviours learned in daily physical education. Also, engaged communities can enhance resource availability for physical activity outside school hours. This includes maintaining public sports facilities, organising after-school programmes, and offering affordable access to equipment and activities (Neil-Sztramko et al., 2021). Concerning the correlations between students' value orientations and their health awareness and behaviours, material values show a weak positive correlation with perceptions of health, mental health and fitness, meaning those who value materialism tend to rate their health more favourably. This result suggests that individuals valuing materialism may have

a more favourable self-assessment of their well-being. This may reflect an optimistic bias, where self-perceptions rather than objective health behaviours are influenced by their value system (Dittmar et al., 2014). Traditional values correlate weakly with better mental health and lower health risk behaviours. This finding implies that adherence to traditional norms might provide a form of psychological stability or discourage risky behaviours. However, the weak correlation indicates this influence is minor (Eather et al., 2023). Individual autonomy also has a weak positive relationship with perceived health and fitness. This finding could reflect that those valuing autonomy feel a sense of personal control over their well-being, which boosts their perception of health (Granero-Jiménez et al., 2022). However, the lack of impact on behaviours suggests that valuing autonomy alone does not translate into tangible health habits (Steckermeier, 2021). However, none of the value dimensions significantly correlate with physical activity, stress levels or healthy eating habits. The absence of significant correlations implies that while value orientations may shape self-perceptions of health, they do not necessarily drive concrete health-promoting actions. This could suggest that behaviour change requires more than a values-based approach and might need specific motivation, knowledge or environmental factors to lead to healthier lifestyles (Davidson & Scholz, 2021).

Differences could be detected in health behaviours within specific value groups. Students who hold traditional values generally have a lower health-risk index, less fitness and a smaller proportion of healthy eaters. This could imply that while traditionalists may avoid high-risk behaviours (like substance use), they may not prioritise proactive health measures, such as exercise or a balanced diet (Liu et al., 2023). Those valuing individual autonomy report better fitness and health-conscious diets but show higher health-risk indices. This could indicate that autonomy-oriented students are motivated to improve their physical health but may also engage in risky behaviours as a form of self-expression or independence, potentially balancing health-conscious choices with risk-taking tendencies (Leyton-Román et al., 2020). Materialists report good health perceptions without notable extremes in other dimensions. This suggests that valuing material success may foster a generally optimistic view of personal health, potentially due to greater financial resources or confidence, but without consistent health practices. Students who actively seek values show the most balanced health outcomes, with good mental health, low-risk behaviours, and healthy diets (Maenhout et al., 2020). This group might reflect a more mindful or intentional approach to life, including well-rounded health practices and lower risk engagement. In contrast, students who reject typical values tend to be less fit and are less likely to maintain a healthy diet. This rejection may reflect a general disengagement with health and well-being, possibly due to a lack of motivation or interest in aligning with commonly held norms, including those about health (Ragelienė & Grønhøj, 2020; Davidson & Scholz, 2020).

The results of the linear regression analysis revealed that the acceptance of traditional values was associated with a lower risk index, while material values slightly increased it. Logistic regression assessed how values influenced healthy eating, revealing that individual autonomy had a slight positive effect on healthy eating likelihood, although the model's explanatory power remained low. Overall, the findings indicate that while values influence health behaviours to some degree, their impact is minimal. Material values slightly increase health risks but also promote healthy eating, whereas traditional values reduce risk behaviours without affecting diet. Individual autonomy positively affects healthy eating but has no impact on risk behaviours. Students with materialistic orientations show a slight increase in health-risk behaviours, possibly due to prioritising material pursuits over health-conscious decisions in certain areas. However, they also tend to eat more healthily, perhaps because material values are associated with better access to resources, enabling them to afford healthier food options or prioritise appearance and wellness (Chu, 2024; Ammar et al., 2017; Manolis & Roberts, 2012). Traditional values are associated with reduced health-risk behaviours, suggesting that these individuals may adhere to socially conservative norms that discourage risky activities like substance use (Castro et al., 2009). Autonomy-oriented students are more likely to eat healthily, potentially reflecting a proactive approach to self-care and personal control over dietary choices. However, individual autonomy does not seem to deter risky behaviours, which may be because autonomy values emphasise freedom and self-determination, which can sometimes lead to more permissive attitudes toward personal risk (Ziegler et al., 2021). To sum up, these findings indicate that values do not have a great influence on the health-promoting lifestyles, but instead have an effect on a few aspects of health behaviour. Among these aspects is the target influence of material and autonomy values – on diet, but in turn, they do not foster a decreased risk tendency in overall behaviour; traditional values, on the other hand, decrease risky behaviours, but at the same time do not foster a better diet. It can be concluded that health habits oriented by values will fail to result in significant enhancement of health behaviour. In order to achieve a more significant impact on health, other interventions apart from values are necessary.

The study examined how various health behaviours impact physical activity, hypothesising that personal values also influence sedentary tendencies. The regression model identified key factors promoting physical activity known as a sporting peer group, interest in sports, family

background, positive mental state, healthy eating, being male, and material values. Material values were linked to health-damaging behaviours, while individual autonomy values aligned with a sedentary lifestyle (Chu, 2024; Ammar et al., 2017; Manolis & Roberts, 2012). The findings suggest that students valuing materialism are less likely to adopt health-conscious habits, while those embracing autonomy tend towards inactivity, which aligns with the literature associating materialism with reduced physical activity (Isham et al.,2022; Moravecz, 2022).

The findings of the research suggest several demographic groups in which targeted interventions might be particularly impactful for promoting health-conscious behaviours. Students in financially challenging situations or from rural areas show lower sports participation and engagement in health-promoting behaviours. Community-based health education programmes emphasising the long-term benefits of physical activity and balanced nutrition may be useful for them. Besides this, students with materialistic values report better dietary habits but are more likely to engage in risky health behaviours. Therefore, promoting the connection between health-conscious behaviours and achieving personal goals like career success or physical appearance may be beneficial among them. Overcoming socio-economic, cultural and logistical issues through community engagement and policy interventions can contribute to the improvement of physical health and sporting activities. Technological tools, such as fitness tracking apps, can significantly complement traditional physical education programmes by enhancing engagement, personalisation, and continuity in health-promoting behaviours. Fitness apps can provide tailored feedback based on individual performance, such as step counts, calorie burn, or heart-rate monitoring, that aligns with students' value orientations like autonomy, allowing them to set and achieve personal fitness goals. Gamification features in apps (e.g. rewards for milestones, virtual challenges) can make physical activity more engaging, particularly for students who might find traditional physical education monotonous. Moreover, apps allow students to track their fitness progress over time, providing tangible evidence of improvement. This can motivate continued participation and adherence to health-conscious behaviours.

We should emphasise that the study demonstrates novelty in its aim to reveal the previously neglected area of health and educational psychology through examining impacts of different value orientations (materialism, traditionalism and autonomy) on health behaviours. The study explores how personal value dimensions such as materialism, traditionalism and autonomy influence health behaviours, filling a gap in literature that often focuses solely on physical outcomes without considering value systems. It aligns with the emphasis of the Geneva Charter for Well-being on empowering individuals to take control of their health and life choices through value-driven behaviours. The research offers culturally specific perspectives that should guide health-promotion strategies designed for this population, in particular, where the role of traditional and materialistic values in people's behaviours within this culture domain is concerned. Therefore, it offers insights that can inform localised health-promotion strategies and educational frameworks. There is also the issue of the large and varied sample in this case. With over 1,500 respondents from universities in a number of countries, the study has an increased sample size, which makes the findings trustworthy and generalisable within the particular cultural set. The application of advanced statistical methods used in the present research makes it possible to investigate intricate patterns of association as well as rule out confounding variables.

Some limitations of the study should also be noted. The sample is limited to students from specific universities in Hungary, which may not be fully representative of the broader student population, potentially limiting generalisability. While this research focuses on university students from Northern Hungary, the limitations of the findings should be taken into consideration when making generalisations to other regions or countries as well. Northern Hungary is a multi-ethnic region with a wide socio-economic range in both urban and rural populations, which may influence the adoption of health behaviours and values in different ways than in other regions or foreign populations. The findings may be culturally specific, as value orientations and health behaviours can vary across different cultural or regional contexts, impacting generalisability to other populations. Regarding the analysis, one should note that some models showed low explanatory power, indicating that other unexamined factors may significantly influence health behaviours. The study's cross-sectional design limits the ability of the research to establish causation between values and health behaviours, capturing only associations at one point in time. Also, environmental and socio-economic factors were underrepresented and not deeply explored in this analysis, which may further limit the applicability of the findings. Future research could investigate whether these relations are the same in areas with other social and economic conditions, educational models or cultural values, thus expanding knowledge on the interface stage of values, health behaviour and physical activity in wider settings. A more detailed investigation of well-being may also provide further results. The WHO Well-being Inventory was selected for this study due to its focus on subjective mental well-being. However, other instruments may capture the various aspects of well-being in a more detailed way. For instance, SF-36 may provide a broader evaluation of health-related quality of life, including physical and social functioning. These limitations suggest a need for further studies that include diverse

samples, longitudinal designs and additional variables to enhance the understanding of how values impact health behaviours. This study emphasises the relationships that exist between value orientations and health behaviours in a university student context. However, since the design is cross-sectional, it is not possible to infer causality. In order to examine a more complex approach regarding how value orientations affect health behaviours, it would be worth conducting longitudinal studies. Such studies could examine consonantly whether changes in specific value systems always expect changes in health-related behaviours and whether changes in value targeting conditions would improve health-related outcomes over a period of time; it is a question for further research. Longitudinal research would also provide the possibility of animating and disentangling the effects of values, environmental context and life changes on health-related behaviours.

The significance of the study is evident in its results, which address the influence of personal values on health behaviours of university students, considering that health problems associated with lifestyle are becoming more common. While examining the relationships between materialism, traditionalism, autonomy and how those aspects affect health-oriented behaviours, stress is laid on identifying the psychological and cultural factors of health-oriented behaviours of individuals, which in most cases are neglected in studies related to socio-economic or environmental factors. The perspectives on the health behaviours performed by students in the study are linked to their values, suggesting how central those values are to an individual when making decisions about their well-being. Also, since university life is a crucial stage in the development of long-term habits, knowledge of values and health-related behaviours in young people can be useful in developing effective strategies to support optimal lifestyles. The results could contribute to the development of health-promotion policies and educational strategies, which take into account the value system of students, and thus be more effective by promoting health in the context of values like autonomy and tradition. Embedding values-based discussions in physical education may facilitate discussions that tie health-conscious behaviours to students' personal goals and values, especially autonomy, and highlight how physical education can foster freedom, inner harmony and friendships. Ensuring equitable access to daily physical education across socio-economic groups may also contribute to tailoring interventions to align with cultural and individual values to foster participation and reduce disparities.

Conclusions

This research focuses on the health behaviour and health perceptions of university students' personal values. It suggests that certain values, such as materialism, traditionalism and those oriented towards autonomy, influence one's health perceptions and chosen lifestyles, although to a lesser extent. More specifically, although they are more prone to riskier behaviour, students who are perceived to be more materialistic tend to report being healthier and have a better diet. It was found that traditional values are associated with the presence of lower risk-behaviours, while AI values are positively correlated with the healthy-eating dimension but do not act as a deterrent towards health-risk behaviours. It is also the case that none of the values of these young people had a marked effect on their level of physical activity, which suggests that value orientations cannot by themselves account for young people's total involvement in health-promoting behaviours.

The results raise the possibility that health education interventions may be more successful if they are designed around the attitudes and behaviours of the students. For example, to promote healthy behaviours among students who value autonomy, interventions stressing the importance of trusting oneself when choosing well-being could be adopted: for material students it may be easier to present the message that well-being can come from working hard and investing in oneself. These findings directly inform the development of policy directed towards public health which utilises cultural practices that promote well-being in society without encouraging material pursuits.

The results of this research demonstrate that, on one hand, value orientations do influence students' health, while on the other hand, it appears that certain value orientation which stresses individual independence is quite influential on health promoting behaviours of students. These findings therefore underline the need for adapted, community-based and multi-faceted strategies that place interventions in the value systems, resource constraints and cultural dynamics of socio-economically disadvantaged areas. Thus, at every level and in every respect, health promotion will be transformed into a practice that benefits students equitably across a range of socio-economic contexts. In light of these findings, it would be appropriate for health educators to insert these preferences into their strategies by developing or modifying educational approaches. Schools and colleges need to create curricula that promote independent learning and independent decision-making. Schools and universities should develop programmes that emphasise self-directed learning and decision-making. For instance, Healthy Autonomy Curriculums may be applied to incorporate autonomy-supportive education into existing physical education and health courses. These may include modules on goal-setting, critical thinking, and independent decision-making in health contexts (e.g. designing a personalised fitness or nutrition plan). Educators could integrate topics like nutrition, physical activity and mental well-being into existing

courses, making them relatable through discussions of personal values and lifestyle goals. For example, students could explore how autonomy-driven decision-making affects their dietary choices or exercise routines. Schools and universities can train mentors to guide students in understanding the connections between their personal values and health choices, fostering deeper engagement with autonomy-oriented and health-promoting behaviours. To evaluate the efficacy of the programme, student engagement and health outcomes of participants may be compared with those of peers in traditional curricula.

The research has significant implications for broader trends in education and public health policy as well. The findings highlight how integrating value orientations and socio-cultural contexts into health-promotion strategies can create more effective and equitable systems. This research supports the integration of daily physical education into broader public health initiatives, emphasising the dual role of education systems in fostering academic success and lifelong health behaviours. Policies can prioritise school-based interventions that promote autonomy, equity and culturally sensitive health practices, making them central to public health strategies. It should also be noted that addressing disparities in health outcomes is a priority for public health systems globally. Policies can fund community engagement programmes, subsidised sports facilities and nutrition initiatives to level the playing field for underprivileged populations. Holistic health policies should also incorporate mental and social health alongside physical health. The research highlights how value orientations, such as those focused on friendship and harmony, promote mental well-being. This can guide policies to create school environments that emphasise social connection through group activities and peer support programmes.

Ethics approval and informed consent

This research was conducted in accordance with the Declaration of Helsinki. The ethical committee of the University of Debrecen approved this study. The research is conducted ethically, the results are reported honestly, the submitted work is original and not (self-)plagiarized, and authorship reflects the individuals' contributions.

Competing interests

The authors declare no conflict of interest

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