QUALITY OF LIFE AMONG UNIVERSITY STUDENTS

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Abstract. The young people are the population segment for whom the quality of life is relatively little analysed. Stronger understanding of the relation to some habits that take shape at this age and become a lifestyle can define health on long term. For this cross-sectional, descriptive, correlational design study, we chose to analyse healthy and unhealthy behaviours, using our own questionnaire, in correlations with some domains (physical, mental or general) of the quality of life. Through a regression analysis, it was identified in a group of students that there are significantly positive associations of diet, sports activities and sedentary behaviour in the three mentioned domains of quality of life. The practical implications of the obtained results can be used to start prevention programs, curricular changes aimed to address more at these factors and the positive associations to strengthen a healthy lifestyle related to eating habits, sleep and physical activity for students.

Keywords: students; life habits; eating style; sports activities.

Introduction

The impact of the adopted diet and sports activities on the Quality of life (QoL) has been studied and addressed in numerous studies, which drew attention to the link between these variables. It is a well-known aspect that young people are not used to worrying about the adopted diet or the need to practice one sport or another. Students find themselves in a decisive age stage in human development during which they experience changes in all areas and dimensions of intense physical, psychological, emotional and social development. QoL has been associated with a range of favorable health outcomes. For example, the conclusions of a study carried out on 761 students in Spain found strong associations between the QoL and the students' lifestyle habits. Thus, the recommendations are quite strong in the direction of creating and implementing strategies to promote a healthy lifestyle, which can be maintained throughout life and improve its quality (Jiménez Boraita et al., 2024).

Another cross-sectional study, also carried out in Spain, compared the lifestyle habits and other psychological and social indicators of students from rural and urban areas. Their results drew attention to other differences that should be taken into account, depending on the environment of origin, thus, students from the urban environment are overstimulated, they have a much lower number of hours of sleep during the night compared to those from the environment rural, as well as a higher consumption of fast food products. On the other hand, although they have a longer rest period, students from rural areas lack extracurricular physical activities, an

aspect that makes them become sedentary (Boraita et al., 2022).

Another comparison was made between students, regarding the lifestyle, according to gender. A sample of 383 men and 378 women was involved in the study. The results showed a preference for greater physical activity among young males, compared to females. Among other differences identified, we can count the fact that women have a diet richer in vegetables and, at the same time, find more satisfaction in the academic environment, compared to men. Physical health was found to be similar in both sexes, with the mention of the fact that, in the case of females, there are strong associations between the adopted eating style and body satisfaction. All these conclusions indicate the need to adopt strategies to promote an active and healthy lifestyle, adapted and personalized to the needs of each gender (Boraita et al., 2020)

The conclusions of another research found significant relationships between the practice of a healthy lifestyle and aspects related to spiritual growth and stress management, on the one hand, and the general QoL, on the other hand, at least among students. In the study conducted on students, 40.7% of them reported a good QoL, while 19.8% reported an average QoL. Their results did not find relationships between QoL and nutrition, preference for practicing sports activities and stress management, but QoL was positively associated only with the spiritual growth of students (Tol et al., 2013)

Health promotion behaviors and their impact is unclear in terms of increasing the QoL of students. A study analyzed the relationship between QoL and seven health-promoting behaviors. Thus, the QoL was associated with the lack of tobacco consumption, practicing sports, increasing fruit consumption and decreasing fat consumption, using UV protection, but not with alcohol consumption (Grant et al., 2009).

377 students completed the Short Version Lifestyle and Habits Questionnaire (LHQ-B) and QoL (QOL). The results of the study showed that physical health and physical exercise and sense of humor were the best predictors of QoL, while stress is predicted by social concerns, mental health and accident prevention (Dinzeo et al., 2014).

The relationship between physical activity, sedentary behavior and QoL was studied on 595 students. The physical activity carried out in the household was positively associated with the QoL, but its volume decreases with age and a significant difference was also found regarding the impact of sedentary behavior during the week compared to the weekend. The latter is negatively associated with the QoL and with aspects related to intimacy, safety and communication, thus, even more attention is drawn to the promotion of a healthy lifestyle (Nowak et al., 2019).

Another 372 students were involved in a study related to the link between the QoL and students who suffer or not from food neophobia. The results of the research indicated that both students who suffer from food neophobia and those who do not have this disorder register positive levels of QoL, and the eating habits of those with food neophobia are conditioned by eating as a family and by the cohesion between family members (Schnettler et al., 2017).

Another study identified the typologies of university students according to the QoL, at a global level, and the satisfaction with their life related to food. Results

similar to the previous study were found, namely that students who spend time at the table with their family and who live with their families have higher levels of satisfaction with the food choices they make, compared to those who are far from home and who do not have direct support from their parents (Schnettler et al., 2013).

Method

Hypotheses

H1. Healthy eating and sports activities are significant positive predictors of quality of life.

H2. Unhealthy diet and sedentary activities are significant negative predictors of quality of life.

Methodology

Participation and procedure

122 students between the ages of 18 and 35, M = 21.34, AS = 4.05, participated in the present study, of which 78 were male (64%) and 44 were female (36%). Of the total participants, 100 are unemployed students (82%), and 22 are employed students (18%). In terms of marital status, 70 are single (57%) and 52 are in a relationship (43%), and in terms of year of study, 77 are in the 1st year of study (64%), 25 in the 2nd year (20%), three are in the 3rd year of study (2%), 16 are in the 1st year of master (13%) and one is in the 2nd year master (1%).

Instruments

Sociodemographic data were collected through a list of questions regarding gender, age, occupational status, marital status, year of study.

Information on diet was collected through a list of questions that is analyzed in the descriptive analysis part.

Eating style was measured by a questionnaire developed for the purpose of this study. It included 20 items. The first 10 are for positive eating habits, and the last 10 are for the negative ones. Example of several items: "*I usually serve breakfast in one form or another*", "*I consume vegetables, as little processed as possible*", "*I consume carbonated drinks*", "*I consume substances containing steroids*". Answers were given on a five-point Likert scale, where 1 – to a very small extent and 5 – to a very large extent. High scores on the first 10 items reflect a predominantly healthy eating style, while high scores on the last 10 items reflect a predominantly unhealthy eating style, including drug, nicotine and alcohol use.

Sports activities were measured by means of a single questionnaire developed for the purpose of this study. It includes 10 items related to different types of sports activities. Examples of items: "*I am jogging*", "*I play football, basketball, handball or volleyball*", "*I swim*". Answers were given on a five-point Likert scale, where 1 – not at all or very rarely (once every few months) to 5 – always or very often (several times a week). High scores indicate an increased level of physical activity.

Sedentary activities were measured by means of a single questionnaire developed for the purpose of this study. It included five items related to watching movies or playing computer games. Example of items: "*I watch TV regardless of the show*", "*I sit at the computer for entertainment activities (Instagram, Facebook, TikTok, etc.)*". Answers are given on a five-point Likert scale, where 1 – not at all or very rarely (once every few months) to 5 – always or very often (several times a week). High scores indicate an increased level of physical activity.

Health-related quality of life was measured with the *Health-Related Quality*

of Life Questionnaire (Janković et al., 2021). The instrument contains 19 items and measures four dimensions of quality of life, respectively: the physical domain, the mental domain, the social domain and the quality of life in general. Example items: "*I have no physical pain*", "*I feel good in my own skin*", "*My relationships with my family are very good*", "*I feel safe*". Answers are given on a five-point Likert scale, where 1 – strongly disagree and 5 – strongly agree. Scores are obtained by calculating the arithmetic mean for each individual dimension.

The research design

The present study has a cross-sectional, descriptive, correlational design. Data were analyzed using the IBM SPSS 24 statistical analysis program (IBM Corp - Released 2016).

Results

Descriptive statistics

Information on food knowledge and concerns

Q1. Do you know the calorie content of the food you eat?

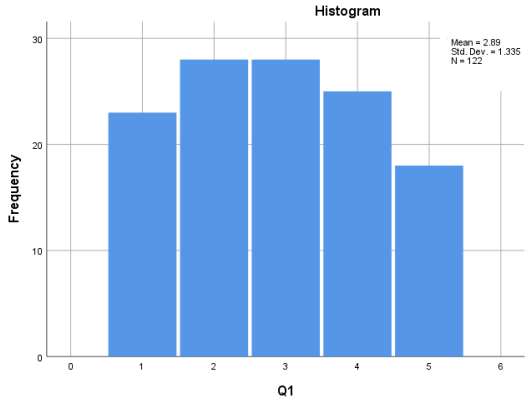

Figure 1. Answers given by participants to question Q1

It can be observed that most of the participants are moderately aware of the caloric content of the foods they consume, M = 2.89, AS = 1.34.

Q2. Do you know what the ideal weight is according to waist, gender and height?

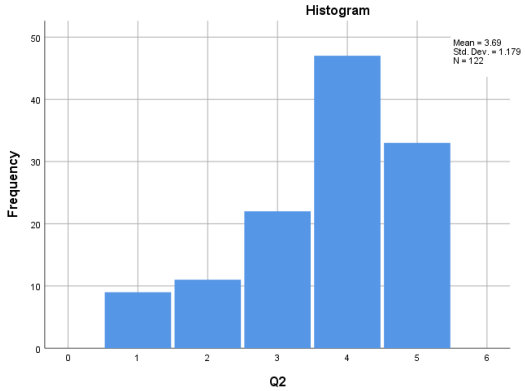

Figure 2. Answers given by participants to question Q2

It can be seen that most participants have increased knowledge about ideal weight, M = 3.69, AS = 1.18.

Q3. Are you concerned about your weight?

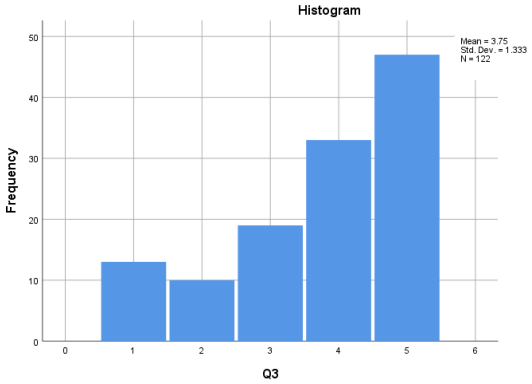

Figure 3. Answers given by participants to question Q3

It can be seen that most of the participants are concerned about their body weight, M = 3.75, AS = 1.33.

Q4. Do you add extra salt to the foods you eat?

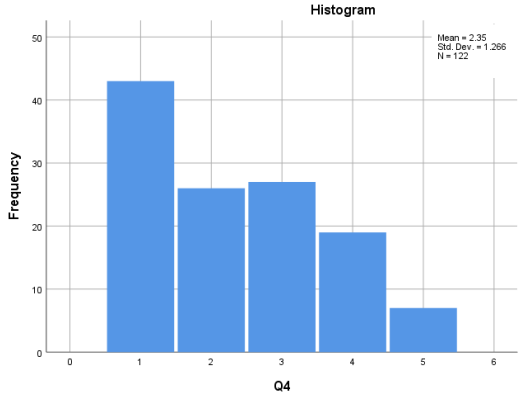

Figure 4. Answers given by participants to question Q4

It can be seen that most of the participants do not add extra salt to the food they eat, M = 2.35, AS = 1.27.

Q5. Do you take vitamins in the form of tablets, pills?

Q6. If so, by whom were they recommended to you?

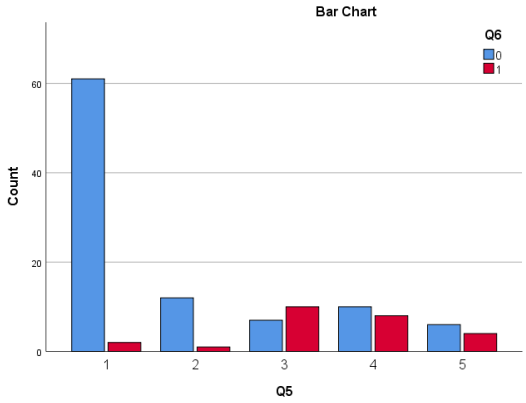

Figure 5. Answers given by participants to questions Q5 and Q6

It can be seen that most of the participants do not consume vitamins in the form of tablets, M = 2.16, AS = 1.41, and if they do, 96 do it on their own initiative (79%), while the remaining 25 do it on recommendation to a specialist (21%).

Q7. Have you followed or are you following a diet?

Q8. If so, by whom was it recommended to you?

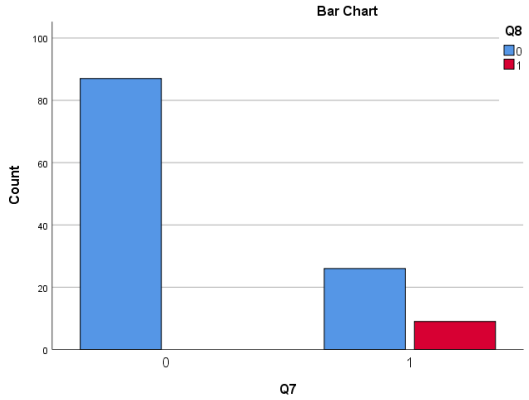

Figure 6. Answers given by participants to questions Q7 and Q8

It can be seen that 87 participants are not or have not been on a diet, and 35 are or have been on a diet. If they are or have been on a diet, 113 did it on their own initiative (93%), while nine did it on the advice of a specialist (7%).

Mean scores, standard deviations, internal consistency coefficients and correlations between variables can be found in Table 1.

Table 1. *Mean scores, standard deviations, internal consistency coefficients, and correlations between variables*

	M	AS	α	ALSA	ALNS	EXSP	ACSE	QF	QP	QS	QG
ALSA	36.36	6.70	.79	1							
ALNS	18.99	5.02	.69	-.23*	1						
EXSP	21.30	6.87	.77	.49**	-.26**	1					
ACSE	15.64	3.73	.70	.01	.38**	-.03	1				
QF	3.49	.88	.75	.38**	-.27**	.44**	-.12	1			
QP	3.56	.96	.87	.20*	-.26**	.34**	-.21*	.68**	1		
QS	3.87	.76	.62	.11	-.12	.22*	-.16	.46**	.64**	1	
QG	3.77	.85	.74	.32**	-.29**	.27**	-.17	.53**	.58**	.59**	1

Note: *. p < .05, **. p < .01.

ALSA – healthy diet, ALNS – unhealthy diet, EXSP – sports activities, ACSE – sedentary activities, QF – quality of life in the physical domain, QP – quality of life in the mental domain, QS – quality of social life, QG – quality of life in general.

It can be noticed that participants scored relatively high on healthy eating, M = 36.36, AS = 6.70 and relatively low scores on unhealthy eating, M = 18.99, AS = 5.02. Regarding sports activities, the scores are low, M = 21.30, AS = 6.87, and for sedentary activities the scores are very low, M = 15.64, AS = 3.73. Regarding the quality of life, the scores obtained by the participants are above average, the highest being recorded in the social domain, M = 3.87, AS = .76, followed by the quality of life in general, M = 3.77, AS = .85, by the mental domain, M = 3.56, AS = .96 and finally the physical domain, M = 3.49, AS = .88.

It is also observed that there are significant positive correlations between healthy eating and quality of life, respectively with the physical domain, r =

.38, p < .01, with the mental domain, r = .20, p < .05 and with the general domain, r = .32, p < .01, but also between healthy eating and sports activities, r = .49, p < .01.

Regarding unhealthy eating, it is negatively associated with sports activities, r = -.26, p < .01 and with three of the quality of life dimensions, respectively with the physical domain, r = -.27, p < .01, with mental domain, r = -.26, p < .01 and with quality of life in general, r = -.29, p < .01. Physical activities are positively associated with all four dimensions of quality of life, respectively with the physical domain, r = .44, p < .01, with the mental domain, r = .34, p < .01, with the social domain, r = .22, p < .05 and with quality of life in general, r = .27, p < .01. Sedentary activities have a significant but weak negative association with the mental domain of quality of life, r = -.21, p < .05.

Skewness and kurtosis are in the range (-1, 1), which reflects a normal distribution of the data.

Inferential statistics – hypothesis testing

H1. Healthy eating and sports activities are significant positive predictors of quality of life.

H2. Unhealthy diet and sedentary activities are significant negative predictors of quality of life.

In order to test these hypotheses, a series of multiple linear regression analyzes were performed, with as predictors healthy eating, unhealthy eating, sports activities, sedentary activities (lifestyle) and as dependent variables, alternatively, the four domains of quality of life.

Table 2. *Multiple linear regression analysis for lifestyle components as predictors of the physical domain of quality of life*

	Unstandardized coefficients		Standardized coefficients		
Model	B	ES	β	t	Sig.
ALSA	.03	.01	.20	2.10	.04
ALNS	-.02	.02	-.13	-1.38	.17
EXSP	.04	.01	.31	3.37	.00
ACSE	-.02	.02	-.07	-.74	.46

Note: $R^2 = .26$

ALSA – healthy die, ALNS – unhealthy diet, EXSP – sports activities, ACSE – sedentary activities, QF – quality of life in the physical domain

It can be seen that the four lifestyle components are responsible for 26% of the variation in quality of life, the physical domain, the regression equation being statistically significant, F(4, 117) = 10.00, p < .01. Of the four lifestyle components, only two are significantly associated with quality of life, the physical domain, namely healthy eating, β = .20, t(122) = 2.10, p < .01 and sports activities, β = .31, t (122) = 3.37, p < .01.

Table 3. *Multiple linear regression analysis for lifestyle components as predictors of the mental domain of quality of life*

	Unstandardized coefficients		Standardized coefficients		
Model	B	ES	β	t	Sig.
ALSA	.00	.01	.03	.27	.79
ALNS	-.02	.02	-.13	-1.33	.19
EXSP	.04	.01	.29	2.89	.01
ACSE	-.04	.02	-.15	-1.66	.10

Note: $R^2 = .17$

ALSA – healthy die, ALNS – unhealthy diet, EXSP – sports activities, ACSE – sedentary activities, QF – quality of life in the physical domain.

It can be seen that the four components of the lifestyle are responsible for 17% of the variation of the quality of life, the mental domain, the regression equation being statistically significant, $F(4, 117) = 5.82$, $p < .01$.Of the four components of the lifestyle, only one is significantly associated with the quality of life, the mental domain, namely sports activities, $\beta = .29$, $t(122) = 2.89$, $p < .05$.

Table 4. *Multiple linear regression analysis for lifestyle components as predictors of the social domain of quality of life*

	Unstandardized coefficients		Standardized coefficients		
Model	B	ES	β	t	Sig.
ALSA	.00	.01	.01	.27	.96
ALNS	-.00	.02	-.01	-1.33	.90
EXSP	.02	.01	.21	2.89	.05
ACSE	-.03	.02	-.15	-1.66	.12

Note: $R^2 = .07$

ALSA – healthy diet, ALNS – unhealthy diet, EXSP – sports activities, ACSE – sedentary activities, QS – quality of social life.

The results shows that the four lifestyle components are responsible for only 7% of the variation in the quality of life, the social domain, the regression equation being statistically insignificant, $F(4, 117) = 2.23$, $p = .70$. Of the four components of lifestyle, none is significantly associated with quality of life in the social domain.

Table 5. *Multiple linear regression analysis for lifestyle components as predictors of the general domain of quality of life*

	Unstandardized coefficients		Standardized coefficients		
Model	B	ES	β	t	Sig.
ALSA	.03	.01	.23	2.33	.02
ALNS	-.03	.02	-.17	-1.83	.07
EXSP	.01	.01	.11	1.10	.27
ACSE	-.02	.02	-.10	-1.11	.27

Note: $R^2 = .17$

ALSA – healthy diet, ALNS – unhealthy diet, EXSP – sports activities, ACSE – sedentary activities, QG – quality of life in general

It can be seen that the four lifestyle components are responsible for 17% of the variation in quality of life, in general, the regression equation being statistically significant, $F(4, 117) = 6.02$, $p < .01$. Of the four lifestyle components, only one is significantly associated with quality of life in general, namely healthy eating, $\beta = .23$, $t(122) = 2.33$, $p < .05$.

Considering this result, we can say that the two hypotheses are partially supported by the analyzed data.

Discussions and conclusions

Barbu et al. (2021), sustain that a lot of types of exercise can be done, depending on skills and interest of each person.

Marsh (2013) developed a study compared to ours who evaluated food preferences and frequency of physical activities and QoL, among 1238 students, from the USA. Positive associations were found between the QoL and the presence of physical activity, the intake of fruits and whole grains, low fat consumption and BMI, thus, a better QoL was recorded for people who consumed daily fruits, vegetables, grains and foods with low fat content, and practiced sports daily (Marsh 2013).

The QoL, the quality of sleep and the eating habits of the students were the object of another study. The results indicated that sedentary, overweight students with a low quality of sleep have lower QoL values (Lanuza et al., 2022)

An experimental group participated in a period of 12 weeks in which they practiced regular aerobic walking, in order to increase the quality of sleep, decrease the level of stress and increase the QoL. The recorded results were statistically significantly better than those obtained by the control group (Wang & Boros 2021).

Another study tried to answer the questions related to the identification of the general level of satisfaction with life and the factors that influence it, at the level of young adults. Two factors were overidentified, compared to the general population, namely social relations and factors related to professional life contexts. Other sub-factors contributing to shaping the lifestyle of young people were marital partnerships, friendships, health and hobbies (Martikainen 2009).

At the level of another research, the factors identified as important in defining the quality of students' lives are good teachers, courses with good didactic approaches, active learning methodologies and effective time management (Tempski et al., 2012)

Another study analyzed the relationship between smartphone addiction and life satisfaction of 554 sports science students from Turkey. The results indicated an inversely proportional relationship, namely, the lower the use of the mobile device, the higher the students' life satisfaction (Kula et al., 2020).

Regarding the diet, although studies indicate the benefits of the Mediterranean diet, there are no studies that analyze the content of a diet that helps to increase well-being. The results of the research are consistent with those of other studies regarding specific foods, but attention is also drawn to the consumption of sweets and fruits, but also to the interaction around the table, the presence of physical activity and BMI (Cabiedes-Miragaya et al., 2021).

The QoL inventory (QOLI), which we also used in the present research, was also used for validation purposes and showed negative correlations with depression, so

the results obtained from its application can be used in order to achieve some intervention plans and optimization of several aspects, including those related to diet and practicing an active lifestyle (Frisch et al., 1992).

The academic environment should continuously monitor the quality of students' lives and carry out awareness and promotion programs of the ways in which it can be optimized, to ensure that students' health is protected and promoted in the short, medium and long term (Sánchez-Hernando et al., 2022).

The quality of teachers, curricula, healthy lifestyles related to eating habits, sleep and physical activity change the QoL of students.

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