

HEALTHY LIFESTYLES OF STUDENTS - REVIEW PAPER

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Review paper:

ABSTRACT

Introduction: The aim of this paper was to synthesize information about health lifestyles of students, in order to have better understanding of improvement of prevention of health of students. Study aim was to evaluate lifestyles of students in the following dimensions: eating habits, physical activity, smoking and drinking alcohol.

Methods: We made references of reviews in electronic data base. Three data bases were reviewed: Web of Science Core Collection, Medline, SciElo Citation Index for observational studies, which treat healthy lifestyles of students. Quality synthesis and PRISMA directions for reports are conducted. **Results:** 154 potentially acceptable articles were identified 11 studies are included in the final analysis. The most relevant data were with students who have the highest presence of positive attitudes towards healthy lifestyles, but it is not conducted in practice in that amount, as it is in theory. **Conclusions:** Healthy lifestyles suggest possible synergy between human health and sustainability in motivation for health goals. According to many authors, it can be concluded that students don't have good eating habits, in general. They eat misbalanced food rich with calories. Also, they have zero of physical activities, having in mind that good diet and working out are beneficial for the health.

Key words: healthy lifestyles, student, university, diet habits, physical activities, alcohol, average study.

Introduction

Healthy lifestyle includes active care of individual's health, responsible behavior towards yourself, others and environment (Yahia et.al., 2016). Health depends on several factors, which we call determinants of health such as: genetic predispositions, psychological features of individual, social and environmental factors (Rogowska et.al., 2020). We can influence on these factors, therefore our activities need to be directed towards change of unhealthy habits and acquiring healthy lifestyles, for individuals of all age. Lifestyle can be influence significantly on our health (McCrory et.al., 2014). Health is basic and necessary right of society, in general. State of physical, psychological and social welfare includes constant improvement of conditions of personal and social features, where individual progresses, in order to achieve better and more quality life (Aguirre Sánchez et.al., 2021). One of the main tasks of professionals of physical and health education is promotion of healthy lifestyles. The problem of young people's diet is one of the leading public and health challenges, both internationally and locally. Nutrition state of young people is reflection of their overall health

i.e. their lifestyles (Sánchez-Ojeda et.al., 2021). Improvement of their health lifestyles builds better relation and style of health, trends, social features, life skills and habits. Period of studying at the faculty presents an important period for creating habits and attitudes of students, as young individuals, and their acquiring (Sánchez-Ojeda et.al., 2021). Creating experience attitudes toward healthy lifestyles (physical activities, nutrition habits, drinking alcohol and smoking) is very significant. Following instructions about healthy lifestyles can prevent many illnesses or reduce their influence on the quality of life and create opportunity of extended and quality life expectancy (Ayşe et.al., 2021). The aim of this paper is to analyze papers, which treat healthy lifestyles of students, through selection of key words in data base web of science. It is important to study physique, physical condition and behavior in lifestyles among students, in order to develop specific recommendations for promotion of health, which will be given to students when transferring to university (López-Sánchez et.al., 2021). The aim of this paper is reviewing average studies of healthy lifestyles and

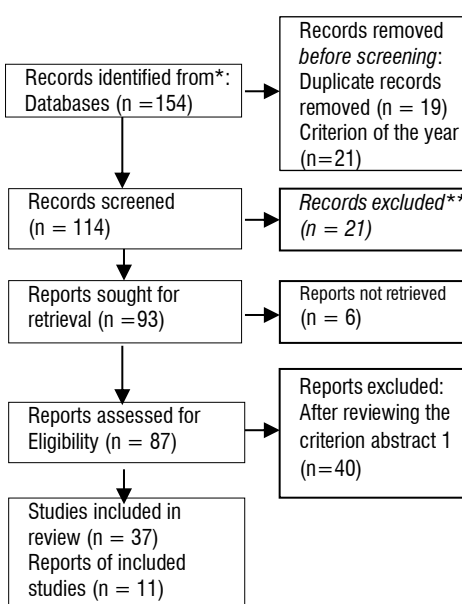
determine nutrition habits and work outs of students, based on differences and connections of healthy lifestyles.

Methods

Analytic and descriptive method and analysis were used in this study. Data bases used in this study: Web of Science Core Collection, Medline, SciElo Citation Index. Search of data base was conducted in the period between 1st and 15th July 2022. Analysis included papers published in English. Analysis included content of all published papers, which in their titles or structure had terms: healthy lifestyles, diet habits, physical activities, smoking and drinking alcohol. Key words of data base, found 693 papers. We set a criterion, key words: student, university, and average study. As a result, we got 154 papers.

Inclusion criteria featured paper published from 2012-2022 and abstracts were screened for adequacy. After removing duplicates and papers from another time distance, 114 paper meet the inclusion criteria. Afterwards, we included search of open approach including reference lists and additionally found 93 potential papers. 6 papers were excluded, overall, because the contained irrelevant age categories, which were not in focus of the study. Out of 87 papers, 37 papers with full text were in accordance to inclusion criteria while 40 of them were excluded. The report was written for 11 papers, in total. Quality synthesis and PRISMA (Page et.al., 2021) directions for reports are conducted.

Figure 1: Elaboration of selection of papers using PRISMA method



Results

Scheme 1 shows that 11 papers were used for analysis. All these papers have fulfilled criteria, which is why they were selected during the data processing. The research they conducted (ANURADHA et.al., 2021) Lifestyle behaviour among undergraduate medical students in Tamil Nadu, skipping of meals was seen in 54% students. Vegetables and fruits intake ≤ 3 times/week were found in 26% and 63% students respectively. Smoking was observed in 3% and alcohol intake in 7.5% students. Lack of exercise was noted in 46%. Television viewing/mobile usage for >4 hours per day was observed in 31% students. Sleep duration of <6 hours/day was noted in 11%. Frequent carbonated drinks consumption (> 3 times/week) was significantly higher in males (14.7%) as compared to females (5.3%). Inadequate exercise was significantly higher in females. Research (Roman et.al., 2016) Eating patterns, physical activity and their association with demographic factors in the population included in the obesity study in Romania (oro study), indicate that Eating 3 meals/day every day was more frequently reported in the 60- 79 years and ≥ 80 years age groups (53.0% and 51.7%) than in the 18-39 years and 40-59 years age groups (26.8% and 35.8%), $p < 0.001$. The frequency of eating breakfast every day increased with age from 43.5% in the youngest age group to 79.3% in the oldest one ($p < 0.001$). Intense and moderate leisure-time physical activity was more frequent among participants in the 18-39 years age group. Leisure time physical activities were associated with younger age groups, male sex, rural area, higher educational level and non-smoking status. Regular breakfast and regular consumption of 3 meals/day was associated with older age group, male sex and non-smoking status. By analysing the results (11) Health-related lifestyles among Italian university students, students showed good nutritional knowledge (73%), but some deficiencies related to low fruit/high sweets consumption, and a lack of basic macronutrients information. Only 30% of the students led a very active lifestyle and physical inactivity was greatest among overweight/obese students. Sedentary lifestyle and unhealthy diet were mainly associated with modifiable risk factors, e.g., being overweight and smoking. Research results (Beltran et.al., 2022) Lifestyles related to health in university students, shows that a percentage of 9% of the students have excellent lifestyle, and 46% were assessed as good. Based on the Multivariate regression approach, we observed

that women are more inactive [OR 1,5 (IC 95% 1,1-1,9)] and they have also low quality of sleep [OR 1,4 (IC 95% 1,1-1,6)]. Younger students consume tobacco [OR 1,4 (IC 95%

Table 1: Overview of papers with basic information, which were taken into consideration when analyzing results- healthy lifestyles of students

| NO | Author Full Names | Article Title | Source Title | Publication Year |
|-----|---|---|---|------------------|
| 1. | Anuradha, R.; Priyadarshini, S.; Patil, Aruna (ANURADHA et al., 2021) | Lifestyle Behaviour among Undergraduate Medical Students in Tamil Nadu: A Cross-sectional Study | JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH | 2021 |
| 2. | Roman, G.; Bal, C.; Craciun, A.; Craciun, C. I.; Rusu, A. (Roman et al., 2016) | Eating patterns, physical activity and their association with demographic factors in the population included in the obesity study in Romania (oro study) | ACTA ENDOCRINOLOGICA BUCHAREST | 2016 |
| 3. | Bravini, Elisabetta; Azzolina, Danila; Janin, Denise; Vercelli, Stefano; Panella, Massimiliano; Rinaldi, Carmela (11) | Health-related lifestyles among Italian university students: A cross-sectional study | EPIDEMIOLOGIA & PREVENZIONE | 2022 |
| 4. | Beltran, Yaneth Herazo; Nunez-Bravo, Narledis; Sanchez-Guette, Lilibeth; Vasquez-Osorio, Fermina; Lozano-Ariza, Angel; Tones-Herrera, Edwin; Valdelamar-Villegas, Alexandra (Beltran et al., 2022) | Lifestyles related to health in university students | RETOS-NUEVAS TENDENCIAS EN EDUCACION FISICA DEPORTE Y RECREACION | 2020 |
| 5. | Bennasar-Veny, Miquel; Yanez, Aina M.; Pericas, Jordi; Ballester, Lluís; Carlos Fernandez-Dominguez, Juan; Tauler, Pedro; Aguilo, Antoni (Bennasar-Veny et al., 2020) | Cluster Analysis of Health-Related Lifestyles in University Students | INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH | 2020 |
| 6. | Ramirez-Velez, Robinson; Triana-Reina, Hector R.; Carrillo, Hugo A.; Ramos-Sepulveda, Jeison A.; Rubio, Fernando; Poches-Franco, Laura; Rincon-Parraga, Daniela; Meneses-Echavez, Jose F.; Correa-Bautista, Jorge E. (Ramirez-Vélez et al., 2015) | A cross-sectional study of Colombian University students' self-perceived lifestyle | SPRINGERPLUS | 2015 |
| 7. | Whatnall, Megan C.; Patterson, Amanda J.; Brookman, Stephanie; Convery, Paula; Swan, Claire; Pease, Stephanie; Hutchesson, Melinda J. (Whatnall et al., 2015) | Lifestyle behaviors and related health risk factors in a sample of Australian university students | JOURNAL OF AMERICAN COLLEGE HEALTH | 2020 |
| 8. | Nacar, Melis; Baykan, Zeynep; Cetinkaya, Fevziye; Arslantas, Didem; Ozer, Ali; Coskun, Ozlem; Bati, Hilal; Karaoglu, Nazan; Elmali, Ferhan; Yilmaze, Gulay (Nacar et al., 2015) | Health Promoting Lifestyle Behaviour in Medical Students: a Multicentre Study from Turkey | ASIAN PACIFIC JOURNAL OF CANCER PREVENTION | 2014 |
| 9. | de-Mateo-Silleras, Beatriz; Alicia Camina-Martin, Ma; Cartujo-Redondo, Alicia; Carreno-Enciso, Laura; de-la-Cruz-Marcos, Sandra; Redondo-del-Rio, Paz (de-Mateo-Silleras et al., 2019) | Health Perception According to the Lifestyle of University Students | JOURNAL OF COMMUNITY HEALTH | 2019 |
| 10. | Mueller, Carsten; El-Ansari, Kareem; El Ansari, Walid (Müller et al., 2019) | Health-Promoting Behavior and Lifestyle Characteristics of Students as a Function of Sex and Academic Level | INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH | 2022 |
| 11. | Moreno-Gomez, Carlos; Romaguera-Bosch, Dora; Tauler-Riera, Pedro; Bennasar-Veny, Miquel; Pericas-Beltran, Jordi; Martinez-Andreu, Sonia; Aguilo-Pons, Antoni (Moreno-Gómez et al., 2019) | Clustering of lifestyle factors in Spanish university students: the relationship between smoking, alcohol consumption, physical activity and diet quality | PUBLIC HEALTH NUTRITION | 2012 |

1,1-1,9)] they do not sleep well and show inability to manage stress [OR 2,1 (IC 95% 1,5-2,9)]. Students from the lowest socio-economic stratum have more probability of lower consumption of fruits and vegetables but higher consumption of salt, fat, and sugar [OR 1,7 (IC 95% 1,1-2,8)]. Researchers (13) in your studio, Cluster analysis of health-related lifestyles in university students, indicate that, means that consumed more alcohol,

had less healthy diets, were more likely to be overweight, and performed more physical activity. Women had a higher prevalence of low weight and performed less physical activity. Physical activity had a negative association with time using a computer (OR: 0.85; 95% CI: 0.76, 0.95) and a positive association with adherence to the Mediterranean diet (OR: 1.16; 95% CI: 1.02, 1.32). Adherence to the Mediterranean diet had a negative association with tobacco consumption (OR: 0.52; 95% CI: 0.30,

0.91), and positive associations with having breakfast every day (OR: 1.70; 95% CI: 1.05, 2.76) and consuming more daily meals (OR: 1.43; 95% CI: 1.10, 1.87).

Study of Colombian University students' self-perceived lifestyle (Ramírez-Vélez et.al., 2015) we can see, having a good LS was perceived by 57.4% of the females and 58.5% of the males; 14.0% of the females rating their LS as being excellent and males 19.3% ($p < 0.001$); 20.3% of the females and 36.6% of the males stated that they spent more than 20 min/day on PA (involving four or more times per week). Negative correlations between FANTASTIC score and weight ($r = -0.113$; $p < 0.01$), body mass index (BMI) ($r = -0.152$; $p < 0.01$) and waist circumference ($r = -0.178$, $p < 0.01$) were observed regarding females, whilst the correlation concerning males was ($r = -0.143$, $p < 0.05$) between fantastic score and weight, ($r = -0.167$ for BMI, $p < 0.01$) and ($r = -0.175$, $p < 0.01$ for diastolic blood pressure).

Study results (Whatnall et.al., 2015), Lifestyle behaviors and related health risk factors in a sample of Australian university students, they show, participants with unhealthy lifestyle behaviors included; 89.5% not meeting vegetable recommendations, 50.3% exceeding lifetime risk guidelines for alcohol intake, and 38.1% insufficiently physically active. Rates of health risk factors included; 39.6% overweight/obese, 37.6% high or very high risk of psychological distress, and 22.0% food insecure.

Research (Nacar et.al., 2015) health promoting lifestyle behaviour in medical students, they indicate, the mean age was 20.7 +/- 2.9 years and it was found that 55.1% were men, 62.3% were in the first year. The overall prevalence of smoking was 19.1%, and for drinking alcohol was 19.4%. HPLP point averages of the first-year students were 129.2 +/- 17.7, and for last year 125.5 +/- 19.0. The overall

mean score for the HPLP II was 2.5 +/- 0.4. They scored highest on the spiritual growth subscale (2.9 +/- 0.5), interpersonal relations (2.8 +/- 0.5), health responsibility subscale (2.3 +/- 0.5), nutrition subscale (2.3 +/- 0.5), stress management subscale (2.3 +/- 0.4), and the lowest subscale physical activity (2.0 +/- 0.5). Study, Health perception according to the lifestyle of university students (17), indicates that university students are characterized by having inadequate eating habits, along with an unhealthy lifestyle, which, among other factors, can affect the perception they have of their state of health Study, Health promoting behaviour and lifestyle characteristics of students as a function of sex and academic level (Müller et.al., 2019), although 91% of students achieved the aerobic PA guidelines, only 30% achieved the muscle strengthening exercises (MSE) guidelines, and 44% had high SB. Likewise, <10% met the fruit and vegetable consumption (FVC) recommendations, >40% of students experienced impaired sleep, and >30% had hazardous alcohol consumption. Less than 20% of the sample achieved the guideline/recommendation of all three PA, MSE and SB

The dietary pattern of the student population was characterized by a low consumption of cereals and tubers, fruits, vegetables, olive oil, legumes and nuts, and a high consumption of processed meat, sweets, snacks, soft drinks and pastries (Moreno-Gómez et.al., 2019). Linear, positive and statistically significant correlations were found between the number of meals consumed daily and all of the diet quality scores determined. Determinants of diet quality, both in the univariate and multivariate analyses, were physical activity practice, sex, age and number of meals consumed daily.

Table 2: Overview of papers with basic information; the aims and the conclusions of papers

| Rb. | Author | Aim | Conclusion | Publication Year |
|-----|---|---|---|------------------|
| 1. | Anuradha, R.; Priyadarshini, S.; Patil, Aruna | To assess the lifestyle behavior among the undergraduate medical students and to compare lifestyle behavioral factors between gender. Materials and Methods: A cross-sectional study was conducted among 200 undergraduate medical students, selected by using random sampling method from first year to final year of a government medical college in Chennai, Tamil Nadu from June to August 2018. Self-administered questionnaire was used to collect data regarding socio-demographic profile and lifestyle behaviors such as dietary | Lifestyle related behavioural risk factors such as physical inactivity and nutrition transition like increased consumption of high-fat and low-fiber diet are found to be risk factors for Non-Communicable Diseases (NCD) worldwide. Medical students are susceptible to poor eating habits, physical inactivity, lack of sleep or acquisition of new habits, such as smoking and alcohol. They have been shown to exhibit early risk factors for chronic diseases. Hence, it is essential to assess the lifestyle behaviour among medical students as they are future health care providers. Behavioural risk factors such as unhealthy diet, irregular eating habits, and physical inactivity were prevalent among the medical undergraduate students. | 2021 |

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| | | pattern, physical activity, sedentary behavior, sleep duration, smoking and alcohol consumption. | |
| 2. | Roman, G.; Bala, C.; Craciun, A.; Craciun, C. I.; Rusu, A. | To assess the eating patterns and physical activity habits and other lifestyle components in various age groups in the population included in the ORO study. | Analysis is showed a high frequency of unhealthy lifestyle habits among the younger age groups as compared to the older ones, with the highest frequency of these unhealthy behavior reported in the 18-39 years age group. Four major modifiable behavioral risk factors are considered responsible for the current burden of the non- communicable diseases: tobacco use, physical inactivity, unhealthy diet and excessive alcohol consumption. |
| 3. | Bravini, Elisabetta; Azzolina, Danila; Janin, Denise; Vercelli, Stefano; Panella, Massimiliano; Rinaldi, Carmela | To investigate lifestyle, health-related behaviours, and nutritional knowledge among a sample of Italian university students and to identify social determinants of and barriers to - healthier lifestyles. | This study provides evidencethat health profession students have good knowledge, but their health-related lifestyle is a concern, especially given the role of prescribers that they will play. Structured programmes need to be developed to address the modifiable risk factors associated with detrimental behaviours manifest already during the university years. |
| 4. | Beltran, Yaneth Herazo; Nunez- Bravo, Narledis; Sanchez-Guette, Lilibeth; Vasquez- Osorio, Fermina; Lozano-Ariza, Angel; Tones- Herrera, Edwin; Valdelamar- Villegas, Alexandra | The objective of the present study was to determine factors that may explain healthy lifestyles in university students, so to establish programs for health promoting lifestyles in educational institutions. | Lifestyles related to health in university students might be explained by socio-demographic and academic factors. Improvement strategies for lifestyles based on programs for health promotion in universities are imperative. |
| 5. | Bennasar-Veny, Miquel; Yanez, Aina M.; Pericas, Jordi; Ballester, Lluís; Carlos Fernandez- Dominguez, Juan; Tauler, Pedro; Aguilo, Antoni | This study assessed the prevalence, association, and clustering of health-related lifestyles (smoking, alcohol consumption, physical activity, and quality of diet) among university students. | Health-related lifestyles in young adults are a public health concern because they affect the risk for developing noncommunicable diseases. Although unhealthy lifestyles tend to cluster together, most studies have analyzed their effects as independent factors. Cluster analysis indicated the presence of three distinct groups: Unhealthy lifestyles with moderate risk; unhealthy lifestyles with high risk; and healthy lifestyles with low risk. Health promotion interventions in the university environment that focus on multiple lifestyles could have a greater effect than interventions that target any single lifestyle |
| 6. | Ramirez-Velez, Robinson; Triana-Reina, Hector R.; Carrillo, Hugo A.; Ramos-Sepulveda, Jeison A.; Rubio, Fernando; Poches-Franco, Laura; Rincon-Parraga, Daniela; Meneses- Echavez, Jose F.; Correa- Bautista, Jorge E. | The aim of this study was to assess the lifestyle in a sample of university students. | This was a cross-sectional, descriptive, observational study involving 5,921 subjects' aged 18- to 30-yearsold (3,471 females) from three Colombian cities. Was applied Fantastic instrument (that consists of 25 closed items on the lifestyle). Based on the obtained results, a specific diffuse, educational and interventional action is proposed to motivate the adoption of a healthy lifestyle among students. |
| 7. | Whatnall, Megan C.; Patterson, Amanda J.; Brookman, Stephanie; Convery, Paula; Swan, Claire; Pease, Stephanie; Hutchesson, Melinda J. | To describe lifestyle behaviors (fruit and vegetable intake, alcohol intake, physical activity, sitting time, smoking, drug use, sleep, sexual health) and health risk factors (body mass index, food insecurity, mental health) in a sample of Australian university students. | Rates of unhealthy lifestyle behaviors and related health risk factors were high within the study population, highlighting the importance of ongoing monitoring and prioritization of effective strategies to improve university student health. |
| 8. | Nacar, Melis; Baykan, Zeynep; Cetinkaya, Fevziye; Arslantas, Didem; Ozer, Ali; Coskun, Ozlem; Bati, Hilal; Karaoglu, Nazan; Ferhan; Yilmaze, Gulay Elmali, | The aim of this study was to determine the predictors of health promoting lifestyle behaviour among medical students attending seven of the medical schools in Turkey. | Based on these results, particularly in the curriculum of medical students in order to increase positive health behaviours including physical activity, health promotion issues, and giving more space to aim at behaviour change in these matters is recommended. |

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| 9. | de-Mateo- Silleras, Beatriz; Alicia Camina-Martin, Ma; Cartujo-Redondo, Alicia; Carreno-Enciso, Laura; de-la-Cruz-Marcos, Sandra; Redondo-del- Rio, Paz | The aim of the study was to evaluate the health perception of a group of university students according to lifestyle. | University students are characterized by having inadequate eating habits, along with an unhealthy lifestyle, which, among other factors, can affect the perception they have of their state of health. There is an association between PA and health perception: students with intense PA have less body pain and better physical function; the less active, the less vitality. The more physically active subjects the greater MD adherence. Lifestyle and eating habits of health sciences students are healthier than that of students from other branches of knowledge. The physically active subjects have a better perception of quality of life-related to health and greater MD adherence. | 2019 |
| 10. | Mueller, Carsten; El-Ansari, Kareem; El Ansari, Walid | University students frequently engage in unhealthy behaviors. However, there is a lack of studies examining a wide range of their lifestyle characteristics by sex and academic level of study. The aim of the study is to assess physical activity (PA), sedentary behavior (SB), diet, sleep quality and alcohol, tobacco and other drug use (ATOD) by gender and academic level. | Some behaviors exhibited significant sex and academic level differences. The identified at-risk groups included males (lower FVC), females (eating more during stress), and BSc students (poorer nutrition/sleep quality, more ATOD use). Given the above findings, multipronged strategies are needed with an overarching focus highlighting the health-academic achievement links. Behavioral interventions and environmental policies are required to raise awareness and promote student health. | 2022 |
| 11. | Moreno- Gomez, Carlos; Romaguera- Bosch, Dora; Tauler-Riera, Pedro; Bennasar-Veny, Miquel; Pericas-Beltran, Jordi; Martinez- Andreu, Sonia; Aguiló-Pons, Antoni | To ascertain the prevalence of and association between main lifestyle factors (diet, physical activity, alcohol consumption and smoking) in students from the Balearic Islands University. | Risk factors such as smoking, diet and physical inactivity had a tendency of clustering among Spanish university students. Overall diet quality was low, due to important departures from dietary recommendations and loss of the traditional Mediterranean dietary pattern. Nutritional education campaigns that include promotion of physical activity practice are needed to improve the overall health status of this population. | 2012 |

Discussion

World Health Organization (WHO) identifies physical inactivity, smoking, drinking alcohol and unhealthy nutrition, as four variable factors of risk in behaviour, which increase the risk of non-infectious diseases (LG et.al., 2019). Over the last few years statistical data show that 4 unhealthy behaviours, only in the last year were responsible for 21,5 million of death cases in the whole world, where the most important factors of risk is nutrition risk, causing 9,3 million of death cases, and low consumption of fruit and vegetables are first of those factors, with 5,7 million (Lim et.al., 2019). Healthy lifestyles present active care about health and responsible behavior towards yourself, others and environment. Health depends on multiple factors, which we call determinants such as: genetic predispositions, psychological features of an individual, social and environment factors. Some factors can be influenced by us, therefore our activities need to be directed to changing unhealthy habits and acquiring healthy lifestyles, for all generations (Borle et.al., 2017). Great number of students start university education before 20 years of age, which is the key phase in terms of lifestyle, since many factors of risk in behaviour appear for the first

time or are emphasized in that period. These unhealthy behaviours present negative influence not only on current student, but for the future adult (Unicef et.al., 2020). Unfortunately, scientific evidence identifies university students as vulnerable population (Rivera et.al., 2020), prone to development of NCD, because they have high level of physical inactivity, bad diet habits and high consumption of alcohol and tobacco. These numbers are even higher than the ones in general population (Fonseca et.al., 2021). Students have more commitments and less free time and great number of students move from their parents' house, which includes independent life, lower financial support and less cooked meals. Some of the students meet cooking and buying groceries for the first time, which leads to consumption of fast food. At this age, their social life, socializing with their friends, is very important for them, which includes going to the fast-food restaurants, bakeries or pastry shops. At this point students don't choose what they eat and how much they eat. The focus is on socializing with friends. Another concerning thing is consumption of alcohol, which starts at early age and is increased in the period of student life and reduction

of physical activities, due to lack of free time. Student period is an important period of an individual and transition from adolescence to adulthood. Students often have bad nutrition. Bad habits such as skipping breakfast, inadequate consumption of fruit, vegetables and dairy products and often consumption of fast food and alcohol are noticed. Level of body activity is reduced and sedentary lifestyle starts to dominate, which leads to increased risk of development of obesity and other chronic non-infectious diseases. Suboptimal health status (SHS) is third state between good health and disease (Ma C et.al., 2018). Students have tendency to develop food and life habits that can lead to gaining weight. Gaining weight can lead to restriction of calories, which is usual among the ones who are worried about their body weight (Ramírez-Contreras et.al., 2021). Level of physical activity is reduced, and sedentary lifestyle starts to dominate, which leads to increased risk for development of obesity and other chronic non-infectious diseases (Ma C et.al., 2018). University students have several variable factors related to low level of physical activity and gaining weight. Promotion of healthy lifestyles needs to modify these risky behaviours. Students have tendency to have nutrition and life habits, which can lead to gaining weight. Gaining weight can lead to restriction of calories, which is usual among the ones who are worried about their body weight (Ramírez-Contreras et.al., 2021). Physical activity of students is an important factor for every individual, that belongs to this group. Students, who are physically more active feel more fulfilled and in better health condition. The most important positive effects of physical activity and working out affect psychosomatic balance in students, its role in socialization and it's connected to natural environment, included in contents responsible for general state of the students and their health (Skurikhina et.al., 2016). Since student period is the last step in educational process, which gives many opportunities of systematic influence on acquiring healthy life habits, considering proofs of current studies, about numerous benefits of physical activity, it is necessary to act on increase of level of body activation of the students. Knowledge about positive effects of physical activity on health of the students and its contribution to the explanation of health quality of life of students, support positive health benefits of physical activity of student population (Tyson et.al., 2010). Since dissatisfaction with physical appearance can cause severe health issues such as: depression, obesity and eating disorders, knowledge on positive link between physical activity and satisfaction with physical appearance can influence on increase of level body activation, which contributes positive perception of physical

appearance, which influences better health, indirectly (Jun et.al., 2014).

Conclusion

Results of healthy lifestyles of students indicate on necessity of further research in this field, in order to determine significant correlations with obtained results and to create a program, which would be directed to improvement of health of students and healthy life habits. Data about increased risk of students, in terms of mental and physical health point to necessity for methodical way of giving help and support to students and significance of higher education, in promotion and perseverance of mental and physical health and destigmatize difficulties in mental health. In that sense, creating different content, which will be available for students through contemporary ways of communication (e.g. instead of expecting the student to come and ask for help at te university administration, maybe it would be better to create an application for mobile phones for help and support for students) seems more suitable.

References

- Yahia N, Wang D, Rapley M, Dey R. Assessment of weight status, dietary habits and beliefs, physical activity, and nutritional knowledge among university students. *Perspectives in public health*. 2016;136(4):231-44.
- Rogowska AM, Kuśnierz C, Pavlova I. Healthy behavior of physical education university students. *Health Problems of Civilization*. 2020;14(4):247-55.
- McCrory M, Bozalis JR, Crutcher JM. Schools for healthy lifestyles addressing the issue of children's health in Oklahoma. *The Journal of the Oklahoma State Medical Association*. 2014;107(9-10):507-9.
- Aguirre Sánchez L, Roa-Díaz ZM, Gamba M, Grisotto G, Moreno Londoño AM, Mantilla- Uribe BP, et al. What influences the sustainable food consumption Behaviours of university students? A systematic review. *International journal of public health*. 2021;76.
- Sánchez-Ojeda MA. Healthy lifestyles of the university population. *Nutricion hospitalaria*. 2015;31(5):1910-9.
- Ayşe D, Şura K, Sunal N. The Effect of the Public Health Nursing Course on Students' Healthy Lifestyle Behaviors. *Clinical and Experimental Health Sciences*. 2021;11(4):695- 700.
- López-Sánchez GF, Radzimiński Ł, Skalska M, Jastrzębska J, Smith L, Wakuluk D, et al. Body composition, physical fitness, physical activity and nutrition in Polish and Spanish male students of Sports Sciences: Differences and correlations. *International journal of environmental research and public health*. 2019;16(7):1148.

- Page MJ, Moher D, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *bmj*. 2021;372.
- ANURADHA R, PRIYADHARSHINI S, PATIL A. Lifestyle Behaviour among Undergraduate Medical Students in Tamil Nadu: A Cross-sectional Study. *Journal of Clinical & Diagnostic Research*. 2021;15(10).
- Roman G, Bala C, Craciun A, Craciun C, Rusu A. Eating patterns, physical activity and their association with demographic factors in the population included in the obesity study in Romania (ORO Study). *Acta Endocrinologica (Bucharest)*. 2016;12(1):47.
- Bravini E, Azzolina D, Janin D, Vercelli S, Panella M, Rinaldi C. Health-related lifestyles among Italian university students: A cross-sectional study. *Epidemiologia e prevenzione*. 2022;46(1-2):68-76.
- Beltran YH, Bravo NN, Guette LS, Osorio FV, Ariza ÁL, Herrera ET, et al. Estilos de vida relacionados con la salud en estudiantes universitarios. Retos: nuevas tendencias en educación física, deporte y recreación. 2020(38):547-51.
- Bennasar-Veny M, Yañez AM, Pericas J, Ballester L, Fernandez-Dominguez JC, Tauler P, et al. Cluster analysis of health-related lifestyles in university students. *International journal of environmental research and public health*. 2020;17(5):1776.
- Ramírez-Vélez R, Triana-Reina HR, Carrillo HA, Ramos-Sepúlveda JA, Rubio F, Poches-Franco L, et al. A cross-sectional study of Colombian University students' self-perceived lifestyle. *Springerplus*. 2015;4(1):1-8.
- Whatnall MC, Patterson AJ, Brookman S, Convery P, Swan C, Pease S, et al. Lifestyle behaviors and related health risk factors in a sample of Australian university students. *Journal of American College Health*. 2020;68(7):734-41.
- Nacar M, Baykan Z, Cetinkaya F, Arslantas D, Ozer A, Coskun O, et al. Health promoting lifestyle behaviour in medical students: a multicentre study from Turkey. *Asian Pacific Journal of Cancer Prevention*. 2014;15(20):8969-74.
- de-Mateo-Silleras B, Camina-Martín M, Cartujo-Redondo A, Carreño-Enciso L, de-la-Cruz-Marcos S, Redondo-del-Río P. Health perception according to the lifestyle of university students. *Journal of community health*. 2019;44(1):74-80.
- Müller C, El-Ansari K, El-Ansari W. Health-Promoting Behavior and Lifestyle Characteristics of Students as a Function of Sex and Academic Level. *International Journal of Environmental Research and Public Health*. 2022;19(12):7539.
- Moreno-Gómez C, Romaguera-Bosch D, Tauler-Riera P, Bennasar-Veny M, Pericas-Beltran J, Martínez-Andreu S, et al. Clustering of lifestyle factors in Spanish university students: the relationship between smoking, alcohol consumption, physical activity and diet quality. *Public health nutrition*. 2012;15(11):2131-9.
- LG RC, EM GD, AL ML. Prevalence of modifiable behavioral risk factors associated to non-communicable diseases in Latin American college students: a systematic review. *Nutrición Hospitalaria*. 2017;34(5):1185-97.
- Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *The lancet*. 2012;380(9859):2224-60.
- Borle PS, Parande M, Tapare V, Kamble V, Bulakh P. Health-promoting lifestyle behaviours of nursing students of a tertiary care institute. *Int J Community Med Public Health*. 2017;44(5):1768-73.
- Unicef. Estado mundial de la infancia 2019: Niños, alimentos y nutrición-Crecer bien en un mundo en transformación: United Nations; 2020.
- Aldana Rivera EE, Echeverría Rodríguez A, Barraza Pedraza GP, Ariza Ahumada C, Navarro Ariza A. Estilos de vida en alimentación y actividad física de estudiantes universitarios de la Facultad de Ciencias de la Salud Barranquilla 2019–2020. 2020.
- Fonseca S, Ponte M, Coelho E, Da Fonseca J, Mourão-Carvalho I. Prevalencia y factores de riesgo asociados con la inactividad física en estudiantes universitarios de Ceará, Brasil. *Nutrición Clínica y Dietética Hospitalaria*. 2021;41(1).
- Ma C, Xu W, Zhou L, Ma S, Wang Y. Association between lifestyle factors and suboptimal health status among Chinese college freshmen: a cross-sectional study. *BMC public health*. 2018;18(1):1-9.
- Ramírez-Contreras C, Farrán-Codina A, Izquierdo-Pulido M, Zerón-Ruggerio MF. A higher dietary restraint is associated with higher BMI: a cross-sectional study in college students. *Physiology & Behavior*. 2021;240:113536.
- Skurikhina N, Kudryavtsev M, Kuzmin V, Iermakov S. Fitness yoga as modern technology of special health groups' girl students' psycho-physical condition and psycho-social health strengthening. *Physical education of students*. 2016;2:24-31.
- Tyson P, Wilson K, Crone D, Brailsford R, Laws K. Physical activity and mental health in a student population. *Journal of mental health*. 2010;19(6):492-9.
- Jun EM, Choi SB. Obesity, body image, depression, and weight-control behaviour among female university students in Korea. *Journal of cancer prevention*. 2014;19(3):240.

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Submitted: 12.09.2022.

Accepted: 28.12.2022