

Healthy Lifestyles in Italian and Latvian university students, according to demographics, study course, and nationality.

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Abstract.

This study compares lifestyles behaviour in Italian and Latvian university students, to assess if there are differences for sex, age, university or studies specialties. An online questionnaire investigating 8 lifestyle dimensions has been compiled by 156 (43,6 % females) from Italy and 105 from Latvia (82,9% females). Answers were collected between April and December 2020. Presence of smokers are negligible. The questionnaire showed to have a good internal consistency (Cronbach $\alpha = .929$). On the total group, significant statistically differences were found for all the dimensions regarding age, sex, study specialty and university. Physical activity was associated with healthier lifestyles choices. Geographical-induced differences were found (eating and sleep behaviours, alcohol awareness) as well as socio-economic differences. Female students shown to be more stressed than males. Occupational wellness increased by age. Sport students shown more health awareness. Many of the differences found in the total group disappeared when comparing only sport students of the two university, showing females increasing their scores. This result can be explained by a masculinization effect of sport.

Keywords: Healthy lifestyles, sport studies, physical activity, socio-economic wellness, emotional wellness, occupational wellness, Psychological wellness.

Introduction.

Quality of life of University student's is a major concern for public health, and has been studied extensively, referring to mental health [1,2], physical activity and nutrition [2,3], health related lifestyles [3,4] such alcohol, drug abuse and sleep habits. Less has been studied concerning the self-perception of lifestyles determinants of health in university students [5,6,7]. The results of these studies are linked to the specificity of the social environment and the interpretation of the results are also influenced by the cultural context, for example religion [8]. Family conditions and social participation (friendships) has been shown associate to healthy lifestyles choices [9]. There is evidence that lifestyles acquired during youth, continue to persist even in adulthood [10], thus making it important to know how these lifestyles develop. The university life, deals to major changes in lifestyles, included less parental control and increased individual autonomy. Stress and freedom are also associated sometimes with alcohol and tobacco consumption, less physical activity, and low consumption of fruit and vegetables [10,11,12]. Socio - economic factors have been hypothesized to be the determinant of certain lifestyles choices [13] and is also known that geographical location influences the mood and thus life habits, sleeping and eating [14]. Gender also influences lifestyles perceptions, as showed a Swedish study in university's students. Males reported to be less stressed and rated higher their health, fitness level and mental health than females [15]. The same study shows how self-

rated health can be predicted by gender and ethnicity [15]. Another study in Spanish university's students [17], found similar results for gender, showing that a significantly greater proportion of men perceived their health as excellent when compared to women, and that men were more involved in sports, both actively than passively. The analyzed cohort in this study, however, does not include sport students. A large multicentric study performed in 6 countries (health professions), shows a better health perception in females but also a higher stress perception. In this study, female's self-rated health perception was slightly higher than in males, in those who ate breakfast more frequently, who reported higher levels of physical activity and spent more time studying [18]. In a population of a Greek university, female students, showed higher scores for healthy eating, had a lower rate of overweight/obesity and a lower rate of alcohol consumption [19]. The better behaviors in female students about alcohol consumption was observed also in a cohort of general students (nursing) from Sweden, which show also to be more stressed than males while males were found to be more at risk of overweight/obesity and less interested in nutrition advice [20]. The study course seems to be another factor which influences lifestyles. In a study performed in health, education and other courses in Spain, has shown that students enrolled in education (34%) and other studies courses (41%) show a prevalence of tobacco consumption compared to health students (22%). This high percentage of smokers in health professions found in this study is quite surprising and has not be observed in other countries [21]. Health students also showed higher consideration of physical activity [20].

A study investigating a sample like ours for geographical distribution, shows that sport students seem more aware of their health status [22] and take care of their health. Polish (northern) students consume more vegetables and liquids, while Spanish consume more seafoods, more dairy products, less alcohol and less tobacco [22]. Nutritional habits have found to be associated with sleep [23], being poor sleep a determinant of high calories income [23].

Interestingly, it seems that poor sleep of medical students depends on the country: 40.60% of Iranian students reported poor sleep quality [24] while 69% of Lithuanian medical students reported good to excellent nocturnal sleep [25]; 70% of Honk Kong students of medicine reported sleep deprivation [26], 47.1% of medical students in India reported refreshing sleep [27], and 31.5% of medical students suffered from sleep deprivation according to a study conducted in Nepal [28]. Physical activity of university students has been largely investigated in scientific literature [3,5,6,17,22,23,29] also comparing different geographical provenience [22]. Significant associations were established between physical inactivity and the time exposed to screens, time studying, feeling low and smoking, and anxiety [30,31]. Physical activity patterns are also influenced by the socio-cultural context, for example in a study performed in Arab Emirates, showed a marked difference in male and female students about physical activity [32]. Environmental meteorological conditions, also influence the patterns of physical activity, for example a study in Norway shows a relationship of the level of physical activity and depressive symptoms in university students [33]. Afro-American students have a poor perception of exercising for health benefits, mental health and of having good nutritional habits for healthy eating [34]. In a large study performed in north American students (with a low percent of Afro-American students among respondents), males reported higher intake of fruits and vegetables, higher physical activity levels, lower stress levels, and poorer sleep quality than females. In this study, sex was found to be related to general lifestyle behaviors which strengthen the results reported in the previous literature [35]. There are very few studies comparing a northern country with a southern country, different for geographical/environmental and socio-economic characteristics [22].

This study aims at investigating the lifestyles behaviours of a university population, to assess a) if there are differences in lifestyles behaviour according to age and sex; b) if there are differences between students enrolled in different subjects' courses, c) if there are differences according to geographical location of the

students (e.g., North and South Europe). A further investigation was conducted in sport students. We hypothesized there were less differences in lifestyle behaviours in sport students compared to non-sport for sex, due to a masculinization effect of sport on females, thus a subgroups comparison among Italian and Latvian sport students was also performed.

Methods.

The students were enrolled in 2 different universities: one belonging to south Europe (Bologna), the other to north Europe (Liepaja). Bologna city (geographical coordinates: 44°29'38"N 11°20'34"E) is a middle size north Italian university town of 395.000 habitants with a student population of 70.000. Liepaja is a middle size university town of central Latvia (geographical coordinates: 56°30'42"N 21°00'50"E) of 80.000 habitants with a student population of 1400. Environmental mean temperature (8,2 Latvia vs 14,3 Italy) and economic (pro-capita income 29.901\$ Latvia vs 39.637 Italy) conditions are quite different between the two countries.

Recruiting was made by word-of-mouth, email messages, and on internet social networks. In addition, a total of 1600 emails were sent to a University's mail list. The students compiled an online questionnaire [36], previously validated [37]. The participants were invited to fill in the questionnaire online. The questionnaire was anonymous, and both Ethical Committees of Liepaja and Bologna University approved the study protocol. Informed consent was requested of the participants prior to the survey. The questionnaire aimed at investigating the Overall Healthy Lifestyle and 8 wellness dimensions: Physical, Intellectual, Emotional, Social, Spiritual, Environmental, Occupational, Financial. Each dimension is assessed by 10 items. Each item can be answered with a 3-grade scale: Almost always = 4 points; Sometimes/occasionally = 2 points; Very seldom = 1 points. Answers were collected between April and December 2020.

Statistical analysis was performed with SPSS v.25. At first, Cronbach's alpha test was performed to determine the internal consistency of the survey which gave an $\alpha = .929$. The answers were assessed for normality with the Kolmogorov-Smirnov ($p < .05$), which suggest using the nonparametric tests. Then, Kruskal-Wallis and Mann-Whitney tests were performed. First a comparison between University (country), gender, age and specialty of study was performed in the whole sample, then a comparison between Italian and Latvian sport students was performed.

Results.

Whole university populations.

In the whole sample, respondents were 156 (43,6 % females) from Italy and 105 from Latvia (82,9% females). Respondent were 10% of the sent emails. Age of the students are reported in Table 1. The students belong to different studies courses (Table 1). Smokers % in the sample was negligible (12,2%, 2,8 for Italians and 11,4 % for Latvian) albeit Latvian students show a higher % of smokers.

	Cases	%	Cum %		Cases	%	Cum %
Sport Sciences	140	89,7	89,7	Pedagogy	14	13,3	13,3
Others	15	9,6	99,4	Primary school teacher	52	49,5	62,9

No answer	1	,6	100,0	Sport (applied)	2	1,9	64,8
				Music	5	4,8	69,5
				Trainer (sport)	32	30,5	100

Table 1. Student distribution by study specialty. Most students belong to sport sciences studies.

Age (years)	Cases	Relative %
18-22	122	46,8 %
23-28	81	31,2 %
29-34	22	8,5 %
35+	34	13,1 %

Tab. 2. Distribution by age.

One respondent (0.4 %) did not indicate age. Distribution for age shows a significant % of the sample be over 30 years. This is due to the subjects enrolled in the schoolteacher's study course.

Using the Kruskal–Wallis and Mann–Whitney test, it was determined whether there are statistically significant differences in the evaluations according to respondents profile. Results are summarized in Table 3.

criteria	Statistically significant differences (p)			
	University	Sex	Speciality	Age
Overall Healthy Lifestyle	.000	.004	.000	.000
Physical Wellness	.000	.000	.000	.000
Intellectual Wellness	.003	-	-	.001
Emotional Wellness	.000	.006	.000	.000
Social Wellness	.006	-	.001	.005
Spiritual Wellness	.007	.013	.006	-
Environment Wellness	.000	.007	.000	.002
Occupational Wellness	.000	.001	.006	.000
Financial Wellness	-	-	-	.050

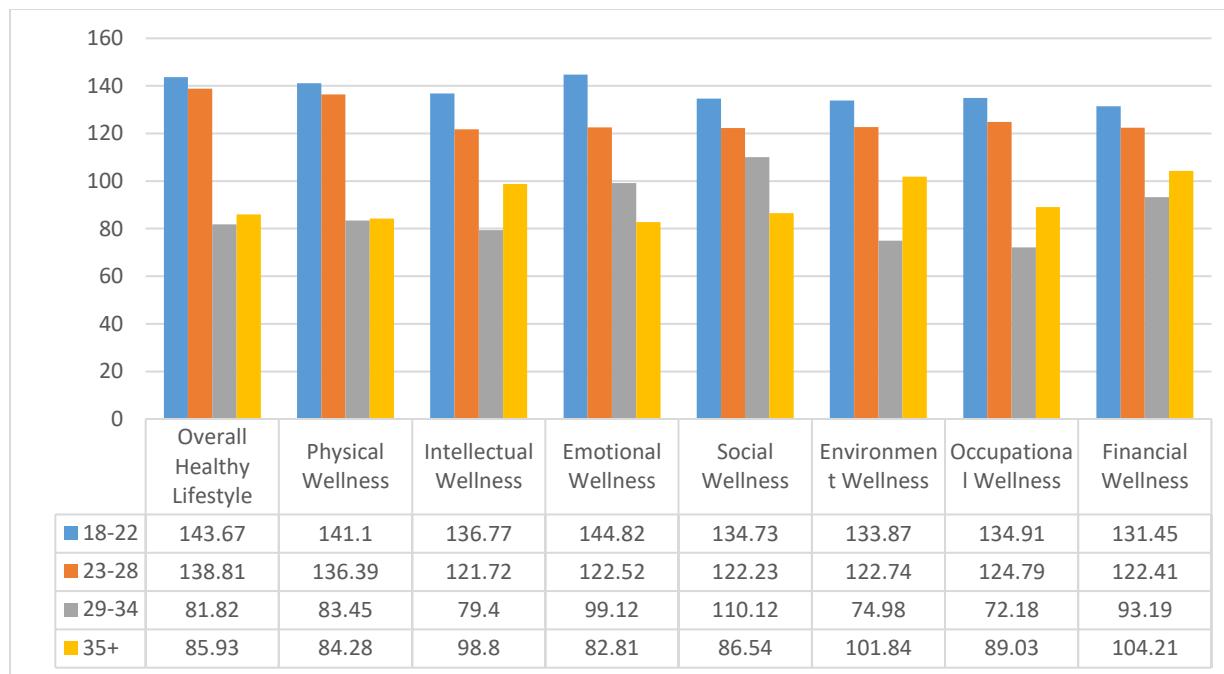
Table 3. Statistically significant differences.

Several statistically significant differences were found between respondent's speciality of study. Statistically most significant differences ($p=.000$) were found in the evaluation of the Overall Healthy Lifestyle: the highest score was obtained in Sport students (Mean Rank 150.01) and other

programs (Mean Rank 153.53); the lowest evaluation was observed in Basic education teachers' programs (Mean Rank 64.57) and Music teachers' programs (Mean Rank 67.80). This result is not surprising, being sport students more involved in health studies. The same result was observed ($p=0.000$) in the scores of Physical Wellness: the highest evaluation was given in Sport field (Mean Rank 146.88) and other programs (Mean Rank 142.03); the lowest evaluation was observed in the teachers and Music programs (Mean Rank 70.21, and 40.40). In Emotional Wellness ($p=0.000$) the highest score was observed in Sport field (Mean Rank 133.40) and other's programs (Mean Rank 195.96); the lowest in the Basic education and Preschool teachers (Mean Rank 79.31 and 40.40). Even in this dimension, sport appear to have a regulating effect on emotional wellbeing. In Social Wellness (0.001), the highest grade was obtained by Sport students (Mean Rank 121.33) and other programs (Mean Rank 197.27); the lowest scores were observed in the Basic education teachers' programs (Mean Rank 92.77). In Environment Wellness ($p=0.000$), the highest score was obtained by Sport students (Mean Rank 130.85) and other programs (Mean Rank 181.38); the lowest in Basic education and Preschool teachers' programs (Mean Rank 85.92 and 86.29). A Statistically very significant differences were found in the evaluation of the Occupational Wellness ($p=0.006$). Respondents who study in other programs gave it the highest evaluation (Mean Rank 154.77), followed by respondents who study in Sport field programs (Mean Rank 127.98), while respondents who study in Basic education teachers' programs gave the lowest evaluation (Mean Rank 79.42). This can be explained with the fact that teachers have a job. Also, the Spiritual Wellness show a very significant differences between groups ($p=0.006$): respondents who study in other programs gave it the highest evaluation (Mean Rank 178.38), followed by respondents which study in Music teachers' programs (Mean Rank 157.80), and by respondents who study in Basic education teachers' programs gave the lowest evaluation (Mean Rank 97.35).

Ranks by Age.

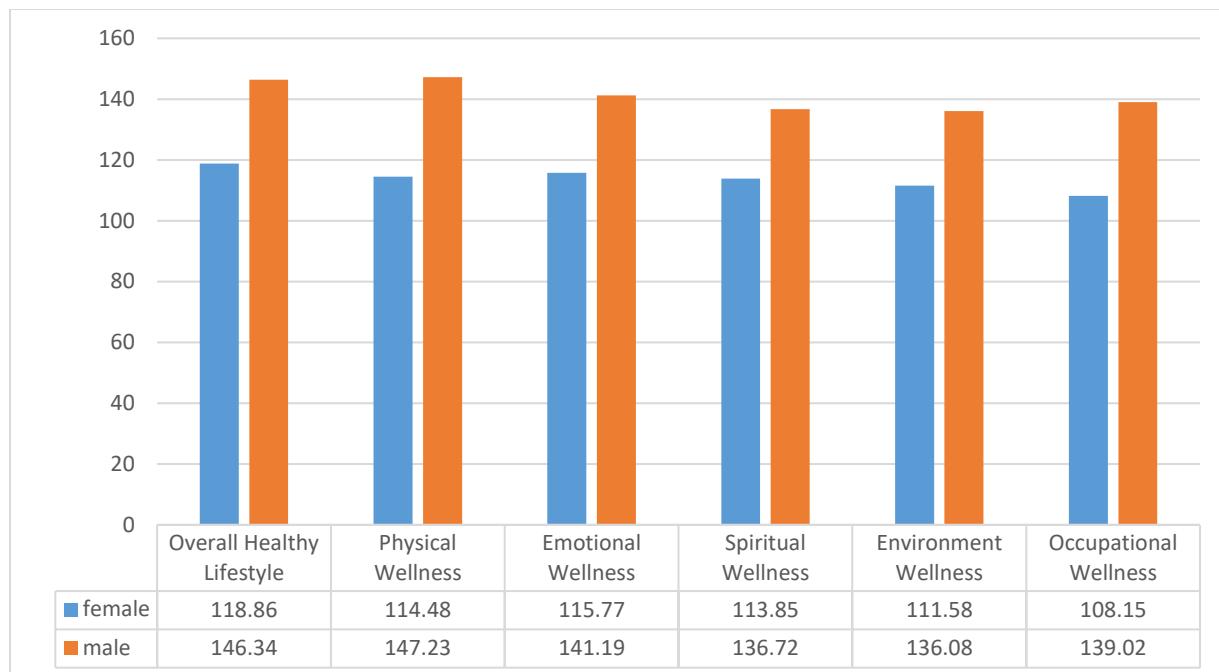
Several statistically significant differences were found according to the respondent's age (see Mean Rank in Graph 1)



Graph 1. Ranks of the different wellness dimensions by age.

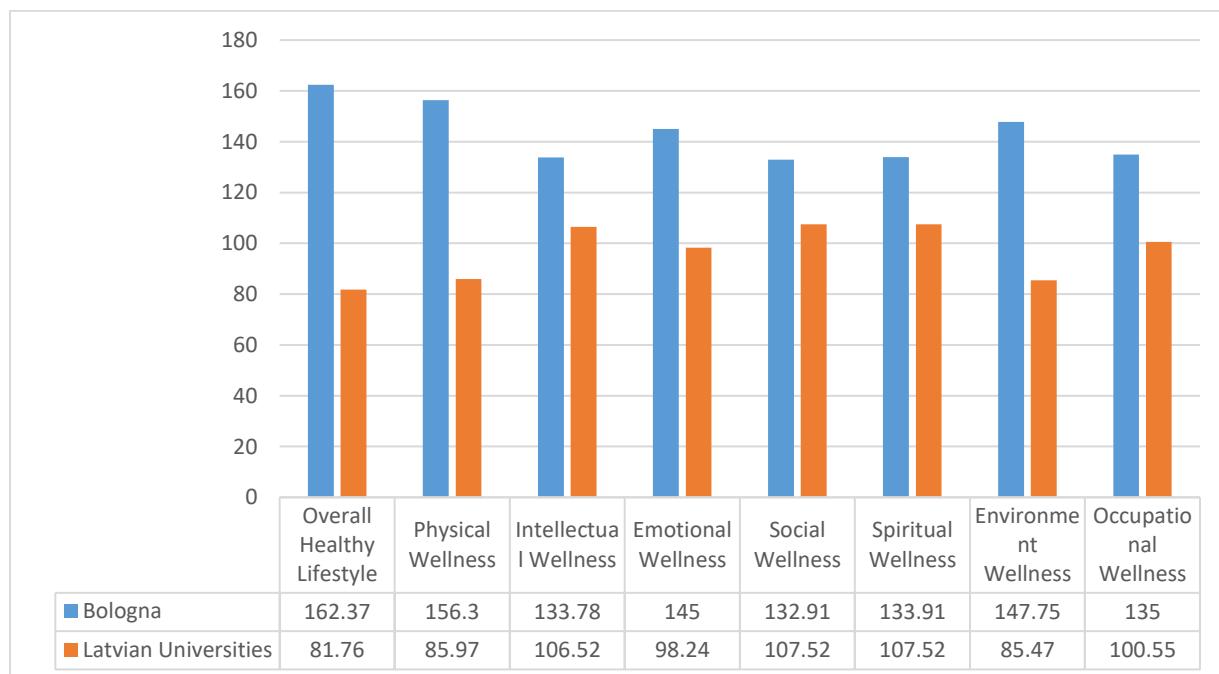
All fitness dimensions declines with age, and this is explained with the presence in the sample of a group of school teachers following an education course. Environmental, occupational and environmental wellness, increase with aging. This result can be explained by the fact that the older subjects have a job and can afford better life conditions.

Results for sex are reported as Mean Rank in Graph 2. Males perceived to be better in all the considered dimensions. This result confirm the findings of other studies, which indicate a need for the improvement of the condition of female students in the university [6,8,12].



Graph 2. Dimension's Rank by sex.

Bologna students perceived themselves better in all the considered dimensions of wellness in comparison to Latvian students (Graph 3). These results probably reflect the different socio-economic and the geographic/environment, and is accord with the results a previous study comparing a northern and a southern Europe cohort of students [22].



Graph 3. Bologna and Latvian students rank.

Comparison of Latvian and Italian Sport students.

The respondents belonging to sport studies were 140 (in a total population of 1000) from Bologna and 34 from Liepaja (on a total population of 60). Age distribution is mostly in the range 18-28 years old. Liepaja students are of older age, because of the presence of a continuum education courses for elementary school teachers in the sample. Age distribution in sport students is reported in Table 4. Age distributions for sport students are like the total sample distribution. Italian students are younger than Latvian.

Age (years)	Total Sport %	Italy %	Latvia %
18 - 22	49,4	59,4	28,6
23 – 28	39,1	36,1	24,8
29 - 34	5,7	1,9	18,1
35 +	5,1	2,6	28,6

Table 4. Age Distribution for Sport Students (%).

In Table 5, significant differences by country/university and are reported for sport students.

questions	p	Mean	
		Italy	Latvia
I do exercises to develop muscular strength and endurance (examples include weightlifting, using exercise bands, push-ups, abdominal curls) at least twice a week.	.010	3.20	2.65
I do exercises (stretching) to develop flexibility at least twice a week (10 minutes, 3-5 days per week)	.025	2.77	2.24
I maintain a healthy weight, avoiding overweight and underweight.	.000	3.58	2.82
I eat a variety of foods each day, including five or more servings of fruits and/or vegetables	.000	3.16	2.18
I limit the amount of total fat, cholesterol, saturated fat, and transfats in my diet.	.000	2.87	2.06
I limit the amount of salt and sugar I eat.	.018	2.97	2.47
I intentionally include whole grains and dairy/calcium products in my diet every day.	.009	2.53	2.00
I enjoy being a student and do other work that I enjoy.	.000	3.07	2.32
I participate in group activities (such as community, school, church organizations) and/or hobbies that I enjoy.	.003	2.51	1.85
I avoid alcohol or I drink no more than 1 (women) or 2 (men) drinks a day.	.000	3.22	2.35
I avoid using alcohol or other drugs as a way of handling stressful situations or problems in my life.	.000	2.99	3.53
I am careful not to drink alcohol when taking medications (such as for colds, allergies, pain) or when pregnant.	.000	3.83	3.24

I avoid driving while under the influence of alcohol or other drugs.	.017	3.42	3.88
I know the warning signs of cancer, heart attack, and stroke.	.004	3.04	2.44
I avoid over exposure to the sun and use sunscreen.	.001	2.73	2.06
I get 7–9 hours of sleep most nights.	.000	3.22	2.29

Table 5. Differences by country in sport students

Overall, Italian's sports students are more aware of their food consumption, except for alcohol and drugs awareness which is higher in Latvian Students. Higher consumption of fruit in Italian students are probably linked to geographical reasons as well awareness of sun exposure. However, differences that can be explained with the geographical location has been evidenced also in other studies comparing European northern and southern countries [22]. Respect to exercise habits, Italians seems to practice strength and flexibility exercises more than Latvians. Again, it is interesting to observe that eating habits reflect the geographical location, as well as habits about sun exposure. Italians eat more fruits and whole grain. Also, they are more aware of the risk of saturated fat and alcohol eating and drinking and of sleep and healthy weight to maintain health. This result is in accord with previous findings about the association between sleep and moderate to intense physical activity in university students [38]. Diet is also a major concern for Italian students, and it is known that diet is related to stress [39], sleep [40] and overall mental health [41]. Italian students show higher rankings in social activities. In a comparative study on mental health of German and Chinese students, more regular social rhythm and physical activity was associated with better mental health [42]. In Table 6, significant differences by sex are reported.

Our hypothesis was that sport has a levelling effects on sexual differences in sport students. Our results confirm this hypothesis. We found only three items significantly different between males and females sport students.

questions	p	Mean	
		Female	Male
I find it easy to relax and express my feelings freely.	.005	2.14	2.60
I avoid driving while under the influence of alcohol or other drugs.	.034	3.70	3.37
I get recommended age-appropriate medical screening tests (examples include blood pressure and cholesterol checks, Pap tests, mammograms, dental exams), immunizations, and booster shots.	.005	2.91	2.44

Table 6. Statistically significant differences between sex.

Males feel themselves freer to express their feelings, are less aware of drinking and drug abuse during driving and are less recommended to undergo medical check-outs. The differences found between males and females sport students are few than the differences found in the total sample. This can be explained because sport is ‘per se’ an activity which in masculine in its components, so it is not surprising there are few differences between males and females. The masculinization of sport studies on female students has been observed also before [43] Interestingly, females seem to perceived it to better cope with stress. This result is different from previous findings in Swedish university students (general curriculum), which found the females more stressed than males [15],

a similar result was found in female medical students [44]. Why female sport students are more stressed than males sport students is not clear. This result need further investigations. A hypothesis can be that the physical load causes more stress in females than in males. In our sample, sleep seems to decline with aging.

Conclusions.

Overall, it appears substantial (significant) differences between males and females, between universities, between ages, and between degrees in all the dimensions of healthy lifestyles. Environmental factors, as well as socio-demographic factors can explain the differences between Italian and Latvian students. Geographical latitude seems to influence the eating habits. Despite the politics to improve the females' conditions in the society, few seems to have been done in the university, to empower female students, which still show worse scores than males in many items. The overall health perception improves significantly with age, and this can be explained by better economic conditions. Sport students are more aware of their health, in comparison to other groups. In our sample, the presence of smokers is negligible, while alcohol seems to be an important health concern in all samples, and more in sport students. Female/male differences are present in the sport students, albeit these differences are few if compared to the gender's differences found in the total sample. This can be ascribed to the sport practice, which has a 'masculinization' effect. A limit of our study is the limited number of students tested in sport, albeit they are a large percent of the respective population. Also, we did not consider any physiologic parameters, for example heart rate variability at rest who has been shown to relate to lifestyles or body weight, which could have been useful to better interpret some association we found. These data can be useful for design intervention program to improve healthy lifestyle in university students.

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