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HEALTHY, HAPPY TEENAGERS: DIFFERENCES IN HEALTH AND LIFE SATISFACTION AMONG SLOVENIAN, CZECH AND ITALIAN HIGH SCHOOL STUDENTS

ABSTRACT

This article investigates the relationships among physical health, mental health, life satisfaction and other life aspects of high school students from the Czech Republic, Italy and Slovenia (n = 3,814). The research is based on a questionnaire-based survey. Subsequent analysis is performed using regression models.

There is a positive relationship between physical health, mental health and life satisfaction. The mental health–life satisfaction relationship is stronger than that between physical health and life satisfaction. Our analysis elicits a number of factors connected with students' well-being: doing sports, use of addictive substances, contact with nature, personal relationships etc. While the factors of well-being in the Czech Republic and Slovenia are similar, the Italians are different. Student factors of well-being vary across the countries to a considerable extent.

KEY WORDS: life satisfaction, health, happiness, students, quality of life

Zdravi, srečni srednješolci: Razlike v zdravju in zadovoljstvu z življenjem med slovenskimi, češkimi in italijanskimi srednješolci

IZVLEČEK

Članek preučuje razmerja med telesnim zdravjem, duševnim zdravjem, zadovoljstvom z življenjem in drugimi vidiki zadovoljstva z življenjem srednješolcev s Češke, iz Italije in Slovenije (n = 3814). Raziskava temelji na anketnem vprašalniku. Analiza

je bila izvedena na osnovi regresijskih modelov. Med telesnim zdravjem, duševnim zdravjem in zadovoljstvom z življenjem obstaja pozitivna povezava. Povezava med duševnim zdravjem in zadovoljstvom z življenjem je pri preučenem vzorcu populacije močnejša kot povezava med telesnim zdravjem in zadovoljstvom z življenjem. Naša analiza opozori na številne dejavnike, povezane s počutjem srednješolcev: ukvarjanje s športom, uporaba zasvojljivih drog, stiki z naravo, medosebni odnosi itd. Medtem ko so dejavniki dobrega počutja na Češkem in v Sloveniji podobni, so pri italijanskih študentih drugačni. Dejavniki dobrega počutja se med študenti treh držav v veliki meri razlikujejo.

KLJUČNE BESEDE: zadovoljstvo z življenjem, zdravje, sreča, srednješolci, kakovost življenja

1 Introduction

The aim of this study is to determine the possible predictors of physical health, mental health and happiness[1] of high school students. This way we hope to contribute to the mapping of students' factors of well-being. Since peoples' notions of what is important for their life satisfaction often differ from reality (Frey and Stutzer 2010), results of this analysis can bring benefits to many young people by informing them about what aspects of their lives could be possibly overlooked. This study belongs to the area of well-being and life satisfaction (happiness) research which has become an important scientific field in the last several decades producing Nobel prize laureates such as Amartya Sen (year 1998), Daniel Kahneman (year 2002) and Angus Deaton (year 2015). Happiness research shows which factors influence life satisfaction (see, e.g., Frey et al. 2007) and which factors are influenced by life satisfaction (see, e.g. Boehm and Lyubomirsky 2008). Based on the results, many implications can be made. For example, governments can better understand citizens' behavior and needs, then decide what actions to take to improve the quality of life of people.

In this article, we investigate the predictors of life satisfaction, physical health and mental health. The reason is that health is one of the most important human values and a premise of a happy life (Abedini and Majareh 2015). In its Constitution, the World Health Organization – WHO (1946) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Health is no longer evaluated just by labora-

1. In happiness research, the term happiness is usually used as synonym to life satisfaction (see, e.g. Frey 2008). We follow this approach. The term well-being is used as a general aspect encompassing physical health, mental health and happiness.

tory results anymore. The subjective perception of each individual's health has become important in health assessment. In accordance with the definition from the WHO, in this study we investigate students' physical health, mental health and also overall life satisfaction.

The next section presents a basic review of literature dealing with physical health, mental health and happiness. Section three describes in detail the methodology used in this paper. This is followed by presenting the results and discussing possible implications. Finally, section five contains the conclusion.

2 Literature Review

Physical health is one of the most important aspects of human life. It is therefore no surprise that there are many studies investigating and describing its different factors. For example, Woloshin et al. (2008) and Gajalakshmi et al. (2003) describe the well-known topic concerning the harmfulness of smoking. Also, there are many factors of physical health that not all people are familiar with. Puig et al. (2013) show that having good personal relationships in one's childhood is an important element of physical health for their adult life. Hsu and Lu (2013) have shown that self-control, personal independence and autonomy are very important predictors of a healthy life. Although such results should apply to the majority of people, there is also a number of studies investigating factors which correlate with physical health specifically among students: Bewick et al. (2008) have shown the harmfulness of alcohol consumption in a group of young people. Further, Yang et al. (2006) have pointed out the negative effect of having an irregular breakfast on one's physical health in the case of adolescents from Taiwan. Bailey (2006) has confirmed the generally presumed positive effects of physical education.

As far as the mental health of the general population is concerned, there is a number of articles dealing with this topic: Heenan (2006) has demonstrated the positive effect of art activities on one's psychological well-being; this was done by studying an innovative art therapy program in Northern Ireland. The importance of partner relationships was shown by Foran et al. (2015) who presented romantic relationship dissatisfaction as the primary reason people seek mental health services. This is an example of a study whose general conclusion most likely cannot be applied to the majority of young people as partner relationships do not constitute such a significant part of students' lives. As for students' mental health, a positive effect of physical education was found (Mechanic and Hansell 1987) as was the case with one's physical health (Bailey 2006). Similarly, there is a positive relationship between students' mental health and sport activities

outside of school (Biddle and Asare 2011). Suldo et al. (2016) have shown a positive relationship between students' mental health, their social support and identity development.

As mentioned above, happiness research has been enjoying a great deal of attention from both researchers and the general public. Naturally, there are many studies describing the relationship of different factors with life satisfaction. For instance, Kahneman and Deaton (2010) investigated the relationship between one's financial situation and life satisfaction while Ruhm (2000) studied the effect of unemployment on this characteristic. There are also a variety of studies examining the role of media (see, e.g. Frey and Benesch 2008). Furthermore, there is quite a bit of research which tries to determine the factors affecting students' life satisfaction. Flynn and Macleod (2015) have found that US students' happiness increases with financial security, academic success and having a good self-esteem. Harmening and Jacob (2015) studied different sociological aspects of a student's life in the US. They found that students are happier when they are included into some community, when they are involved in social life and when they live in a good environment. On the other hand, Lambert (2014) showed that students' happiness is lowered by discrimination, frequent marijuana use, frequent alcohol consumption and by having a long-term health condition. Truly there are many such studies. However, none of them compare the potential factors of happiness across countries using the same methodology.

The contribution of our study is the comparison of many potential determinants of students' physical health, mental health and life satisfaction across three countries using the same methodology in each of them. This way we can discover important factors as well as differences between countries. We also focus on finding the relationship between these three life aspects.

3 Methodology and Data

The basis of our research is data from a questionnaire survey. The questionnaires were distributed and collected from students in 11 schools from the northwestern part of the Czech Republic (the cities of Usti nad Labem, Bilina, Chomutov, Most, etc.), six Italian schools (from the regions of Rome, Teramo and Genova) and in 12 Slovenian schools (from the cities of Ljubljana, Maribor and Celje and their vicinities). The final dataset includes information from 1564 Czechs, 800 Italians and 1477 Slovenians. We selected these countries because they lie close to each other but yet have a different cultural and social backgrounds. Therefore, differences concerning health and happiness may be found. The selection of the schools was subject to our affiliations with these schools in

the three countries. Thus, our dataset lacks the advantages of random selection. To redeem this flaw, we made sure that all of the schools were of the same type (general education) and that all of them educated both boys and girls. This way, a good comparison can be made.

The survey was conducted in November 2017. In all of the schools from all three countries, questionnaires were distributed and collected from all students who were present during a single day. Naturally, some of the students were missing. Again, this violates the requirements of random selection because students who are more likely to be absent may exhibit different behavior patterns. However, this can be the case in each school, so our dataset is consistent. While applying our results to all students (including those who were missing) can be subject to a debate, the results can be applied to students who do not miss a lot of lessons. The data was collected anonymously.

The questionnaire included 23 questions concerning different socio-economic areas of respondents' lives. In order to avoid the autocorrelation of answers, some questions were posed negatively. The list of variables used in the research is presented in table 1 and a summary of statistics is in table 2.

Table 1. List of Variables, Their Description and Scales.

Variable	Variable description	Scale
Health Physical	Physical health evaluation. Question: "How would you evaluate your physical health on a scale from 0 to 10 where 0 is the worst and 10 the best?"	0-10
Health Mental	Mental health evaluation. Question: "How would you evaluate your mental health on a scale from 0 to 10 where 0 is the worst and 10 the best?"	0-10
Life Satisfaction	Life satisfaction evaluation. Question: "How would you evaluate the quality of your current life on a scale from 0 to 10 where 0 is the lowest quality and 10 is the highest quality?"	0-10
Population	Population of the village-town-city of the students	Integer
Commuting Time	Duration of commuting to school	Integer
Sport Time	Number of hours spent doing sport activities per week	Integer
TV Time	Number of hours spent watching TV per week	Integer
Friends Time	Number of hours spent with friends per week	Integer
Soc Networks Time	Number of hours spent on social networks per week	Integer
Art Time	Number of hours spent doing some artistic activity per week (playing an instrument, painting, dancing, creating things, etc.)	Integer

Religious Spiritual	Identification with the statement "I am a religious or spiritual person"	0-10
Cigarettes	Number of cigarettes smoked per day	Integer
Alcohol	Alcohol units consumed per week (1 alcohol unit represents 0.5 liter of beer or 2 dcl of wine or one "shot" of other type of alcohol)	Integer
Marijuana	Does the student use or smoke marihuana regularly? Dummy variable	No/Yes - 0/1
Allowance	Monthly allowance - values were recalculated according to purchasing power parity	Number of Euro
Earnings	Monthly earnings - values were recalculated according to purchasing power parity	Number of Euro
Regular Breakfast	Identification with statement "I eat breakfast regularly" (scale 0-10 where 10 is the highest identification) – proxy variable for leading a structured life	0-10
Discriminated Feel	Identification with the statement "I feel discriminated"	0-10
Relationship Parents	Relationship with one's own parents (-5 completely negative, ..., 5 completely positive)	-5 to 5
Partner	Does the student have a partner? Dummy variable	No/Yes - 0/1
Nature Important	Identification with statement "Contact with nature is important to me" (scale 0-10 where 10 is the highest identification)	0-10
Gender Female	Gender female. Dummy variable	Male/ Female
Age	Age of the student	Number 15-20

To measure reported physical and mental health, we asked the respondents: To what extent is this statement true? "I am physically healthy" and "I am mentally healthy". The answers were measured on a 0–10 scale. We are aware of the fact that this method does not measure the health conditions of the respondents but their reported health. Nevertheless, since self-rated health status has been accepted as a valid predictor of physical well-being and mortality (Kulkarni 2015) and is used in medicine on a regular basis (Benyamini et al. 2000), it gives a rough approximation of the health state, which is needed for our analysis. To measure the real health state a much deeper analysis would be needed which could not be performed inside schools with such a large number of students. When we interpret the results of our analysis, we refrain from repeating that our measure shows reported values only and instead we refer to our variables straightforwardly as physical health and mental health. However, it is important

to bear in mind that the difference between real health and reported health could skew some of the results. Our aim is not to create a perfect map of health predictors but rather to make a modest contribution to this area of research by finding factors that are related to health and that potentially affect the health of students. Further research can use these results as clues to determine the factors of well-being with certainty.

Table 2. Summary of Statistics.

	Czech Republic		Italy		Slovenia	
Variable	**Mean**	**St. Dev.**	**Mean**	**St. Dev.**	**Mean**	**St. Dev.**
Health Physical	8.09	2.24	7.1	2.41	7.98	1.95
Health Mental	7.94	2.45	8.02	1.60	7.86	2.18
Life Satisfaction	7.28	1.84	6.35	2.26	7.7	1.72
Population	73608	222478	32879	50651	20003	48442
Commuting Time	29.75	22.81	23.34	14.25	31.7	21.38
Sport Time	6.26	6.42	7.5	3.66	6.14	5.38
TV Time	7.36	8.94	4.43	4.05	6.84	5.93
Friends Time	14.79	15.13	6.59	5.56	9.59	9.12
Soc Networks Time	24.82	28.4	39.24	20.83	14.68	15.76
Art Time	3.04	6.18	2.74	3.23	2.82	5.38
Religious Spiritual	2.6	2.71	6.68	3.27	5.38	3.12
Cigarettes	2.32	4.96	1.91	5.01	2.65	4.88
Alcohol	2.37	4.95	2.29	4.76	2.18	4.13
Marijuana	0.22	0.42	0.26	0.44	0.25	0.43
Allowance	38.53	55.96	216.48	149.03	82.39	76.2
Earnings	69.24	135.52	217.91	136.41	72.75	155.74
Regular Breakfast	5.29	3.6	6.94	2.25	6.05	3.31
Discriminated Feel	2.1	2.22	3.94	2.43	2.43	2.08
Relationship Parents	3.34	2.21	4.12	1.49	3.12	2.05
Partner	0.47	0.5	0.8	0.4	0.39	0.49
Nature Important	7.01	2.56	7.27	2.57	7.45	2.28
Gender Female	0.51	0.5	0.49	0.5	0.47	0.5
Age	17.39	1.41	16.85	0.85	16.69	1.33

To measure the students' life satisfaction, we used the same question that is used by the United Nations in their annual happiness survey (see, e.g. Helliwell et al. 2018 or Helliwell et al. 2019): "How would you evaluate the quality of your current life on a scale from 0 to 10 where 0 is the lowest quality and 10 the highest quality?". Since Fordyce (1988) showed that different methods of

measuring happiness correlate with each other, our results are comparable with the results of other studies concerning happiness.

Other variables were included into our analysis in order to cover different areas of students' lives. We selected such aspects that can be related either with happiness or with physical or mental health of the students.

To analyze the effect of municipality size, we created dummy variables categorizing those elements. The dummy variables for the population were selected to distinguish between a village (less than 3 000 inhabitants), a small town (3 000–100 000 inhabitants) and a large city (over 100 000 inhabitants). In the case of alcohol consumption, time spent watching TV and time spent on social networks we included into our models both as linear and squared variables. These are labeled with a number two at the end of the variable name. We did so because there is a possibility that life satisfaction and other variables are related with alcohol consumption and watching TV in a non-linear way. For example, it is possible that physical health stays unchanged if small amounts of alcohol are consumed and falls rapidly with consumption of large quantities of alcohol.

The values for financial variables allowance and earnings were converted into Euro (the Czech Republic uses crowns) using exchange rates provided by the Organization for Economic Cooperation and Development (OECD) database at the time of the distribution of the questionnaires. Also, these values were recalculated according to purchasing power parity using recalculating values from the OECD database for the year 2017. When studying the effect of these financial factors, we used logarithmic transformation. The reason is that it has been shown that the effect of personal income on people's well-being tends to decrease with the amount of income received (Kahneman and Deaton 2010).
To find possible predictors of physical health, mental health and life satisfaction we constructed regression models. Since our dependent variables (physical health, mental health and life satisfaction) are discrete on a scale from 0 to 10, it is theoretically necessary to use ordinal logistic regression. However, Ferrer-i-Carbonell and Frijters (2004) showed that when the dependent variable of life satisfaction is reported on a scale from 0 to 10, linear OLS regression gives results which are very similar to the results of ordinal logistic regression. Since the OLS regression coefficients offer a more straightforward interpretation, this method is often preferred and used by many authors (e.g. Frey et al. 2007). Ferrer-i-Carbonell and Frijters (2004) showed this interchangeability in the case of the dependent variable life satisfaction but the same can be expected when the dependent variable is physical health or mental health. Indeed, when we constructed ordinal regression models, the results were almost the same as those of the linear regression models. For the sake of simplicity and in order to offer a

simpler interpretation of coefficients, in this study we present the outputs of the linear regressions only.

It is important to take into account the possibility of endogeneity in our models. Also, it is possible that the variables correlate with other aspects that have not been inquired about in our survey. Thus, our results do not show causal effects but should be interpreted as positive and negative relations only. Although on a theoretical level, endogeneity violates the assumptions of a regression model, as it has been shown that when studying peoples' well-being, the regression model serves as a very good approximation and the theoretical deficiencies do not cause problems on a practical level (Kahneman et al. 1999).

In the next section, we first present basic descriptive findings concerning the health and happiness of students. Thereafter, we introduce outputs of regression models and offer a discussion of these results.

4 Results and Discussion

4.1 Basic Results

Whereas the mean values for mental health are almost the same for all countries, the mean values for physical health and life satisfaction are significantly lower in the case of the Italians. It is possible that the understanding of questions concerning life satisfaction and health is different across countries as suggested by Kahneman-Riis (2012). Yet, it is possible that it is not the case and the Italians are really doing worse than their peers from the Czech Republic and Slovenia. This could surprise those who see Italian life as relaxing, harmonious and full of pleasure. Also, the Italians' otherness is demonstrated by the fact that their standard deviations for life satisfaction and physical health are higher while their standard deviation for mental health is lower.

For all countries, the mean values for life satisfaction are higher than the mean values for the general public in the respectful countries calculated in the World Happiness Report 2017 (Helliwell et al. 2017). This is not surprising since the happiness curve of people in western Europe tends to be U-shaped with the minimum around the age of 40 and the happiness curve of eastern Europeans is generally declining throughout their entire life (Steptoe et al. 2015).

The correlation coefficient between physical health and mental health for the Czech Republic is 0.42 and for Slovenia is 0.52. This shows that physical and mental health in these countries often go hand-in-hand. However, the Italians' coefficient is 0.02. This could be seen as a rather puzzling result. Here, it again seems that the Italians along with their character structures are quite different from the Czechs and Slovenians.

4.2 Students' Physical Health

We begin with the analysis of physical health as the dependent variable. The results are presented in table 3. In the table, we present the estimated coefficients and p-values for the linear OLS models. The last row of each table with regression results shows the statistical criteria of the models. When interpreting the regression results, we focus primarily on variables concerning the health and happiness of the students and then mostly on variables that proved to be significant in more cases.

Table 3. OLS Regression Models' Output. Dependent Variable Physical Health.

	Czech Republic			Italy			Slovenia		
	Coeff	**P-val**	**Sig**	**Coeff**	**P-val**	**Sig**	**Coeff**	**P-val**	**Sig**
const	3.567	<0.001	***	3.451	0.087	*	5.221	<0.001	***
Health Mental	0.316	<0.001	***	0.007	0.893		0.419	<0.001	***
Life Satisfaction	0.123	<0.001	***	-0.021	0.588		-0.034	0.200	
Population Medium	0.142	0.238		0.493	0.097	*	0.034	0.712	
Population Large	0.193	0.357		0.706	0.165		-0.417	0.063	*
Commuting Time	0.003	0.225		-0.003	0.655		0.003	0.135	
Sport Time	0.016	0.063	*	0.059	0.017	**	0.038	<0.001	***
TV Time	0.003	0.809		-0.042	0.226		-0.041	0.006	***
TVTime2	0.001	0.834		<0.001	0.988		0.001	0.276	
Friends Time	-0.004	0.359		-0.030	0.052	*	-0.005	0.274	
Soc Networks Time	0.002	0.802		0.009	0.557		-0.012	0.066	*
SocNetworksTime2	<0.001	0.921		<0.001	0.456		<0.001	0.155	
Art Time	-0.001	0.906		-0.032	0.260		-0.007	0.384	
Religious Spiritual	-0.023	0.249		-0.077	0.010	***	0.021	0.148	
Cigarettes	-0.026	0.048	**	-0.023	0.193		-0.001	0.938	
Alcohol	-0.076	0.008	***	-0.043	0.319		-0.009	0.728	
Alcohol2	0.003	0.014	**	0.003	0.102		0.001	0.470	
Marijuana	0.029	0.840		-0.089	0.661		0.177	0.168	
Allowance Log	0.019	0.574		0.069	0.659		-0.021	0.399	
Earnings Log	-0.002	0.949		-0.126	0.406		0.041	0.025	**
Regular Breakfast	0.013	0.400		0.060	0.145		-0.016	0.253	
Discriminated Feel	-0.030	0.213		-0.067	0.070	*	-0.118	<0.001	***
Relationship Parents	0.067	0.008	***	-0.017	0.781		-0.007	0.757	
Partner	-0.005	0.964		0.062	0.788		0.011	0.906	

Nature Important	0.042	0.041	**	0.071	0.077	*	0.086	<0.001	***
Gender Female	-0.157	0.153		0.146	0.399		0.044	0.631	
Age	0.032	0.411		0.205	0.042	**	-0.036	0.303	
Model criteria	N=1564, R^2 = 0.217			N=800, R^2 =0.067			N=1477, R^2 =0.329		

A reader might notice relatively low values of the R-Squared coefficients in all of our models. However, since our aim is not to predict the exact values for the next groups of students but only to discover potential factors of well-being, this deficiency is not crucial for us. This applies to all regression models constructed in our research.

Mental health is a significant factor both in the Czech Republic and in Slovenia. In Italy, this connection has not been found. The results for the Czech Republic and Slovenia could be expected since the influence of one's psychological state on physical health among adults has been established before (see, e.g. Read et al. 2016). Similarly, Han Beth (2001) found that depression has large effect on physical health and Christina Meyer (2004) shows that depression increases the possibility of hypertension. The high magnitude of the estimated coefficients for mental health indicates that this connection is relatively strong. For example, an increase of mental health in Slovenia by one point is associated with an increase of physical health by 0,419. This observation corresponds with a high correlation coefficient between these factors in the case of Slovenia.

Sport time turns out to be a significant factor in Italy and Slovenia and potentially significant (p-value 0.063) in the Czech Republic. This is an intuitive result corresponding with the findings of other studies: e.g. Zarei (2013) or İneçli and Ziyagil (2017) who showed that life without physical activities among students leads to lower physical health. The strength of this relationship can be considered quite strong; the estimated coefficient 0.059 for Italy says that spending 10 extra hours doing sports is connected with an increase in physical health by 0.59 points. Although an inverse causality as well as correlation of sport time with another unobserved factor must also be taken into account, we can assume with high probability that sport influences physical health in a strong way.

Another factor that is significant in two countries (CR and SI) and potentially significant in Italy is the importance of nature. Also, as can be seen in the following sections of this article, this factor is positively related with mental health in Slovenia and with happiness in Italy and Slovenia. These results show that contact with nature most likely improves students' well-being. This is in line with the studies of An et al. (2016), Han and Hyun (2019) and Bratman et al. (2012); for example, a third of these articles shows that contact with nature has a positive effect on memory, vigilance and mood.

As for addictive substances, someone could be surprised that cigarettes proved to be a significant negative variable only in the Czech regression model. Although the study of Peltzer and Pengpid (2013) shows a negative effect of tobacco consumption on the health of students, it is likely that the negative large effect of cigarettes on physical health manifests itself in later parts of life only. This would be in accordance with Thun et al. (1997), Gajalakshmi et al. (2003) and Woloshin et al. (2008).

The Czech Republic is also the only country where a relation between alcohol consumption and physical health has been found. The linear variable has a negative estimated coefficient and the squared variable concerning alcohol has a positive coefficient. If we assumed the "alcohol to health" causality only, this would mean that small doses of alcohol have negative effect on health but large doses have a positive effect. This conclusion would of course be counterintuitive. We believe that this result can be explained if we take into account the reverse causality (health to alcohol) as well. It is possible that students who are very healthy possibly drink larger amounts of alcohol than less healthy students. The regression results indicate that the dependency of alcohol on health follows the shape of the square root function.

There is no relation between marijuana usage and physical health whatsoever. Unlike with alcohol, this result does not seem counterintuitive at all. On the contrary, many people use marijuana to enhance their physical health in various aspects. In Italy and Slovenia, no relationship between physical health and any addictive substance has been found. The disparity between the Czech students and students from Italy and Slovenia can probably be attributed to having different socio-economic backgrounds between the countries and regions.

In the case of Slovenia, other significant independent variables are: watching TV (positive relationship), earnings-log (positive relationship) and feeling discriminated (negative relationship). These variables have seemingly not much to do with physical health but here we emphasize again that the variable physical health measures the reported level of this aspect. Therefore, factors which not only influence physical health directly but the perception of one's health can be viewed as significant in our models. It is possible that this is the case with the variables TV time, earnings-log and feeling discriminated. One could see this as a flaw of this methodological approach but here it is important to remember the definition of health by the WHO (1946): "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". This concept of health includes the physical, mental and social aspect justifying the subjective approach to studying one's health. Indeed, based on our results, one's sense of being healthy is clearly connected with many sociological phenomena

creating space for further investigation of these areas previously neglected in health research.

In none of the three models, differences between students from villages, small towns and cities have been found. Also, as could be expected, almost no significance concerning financial variables was confirmed. Lastly, no explicit effect of gender in our regression models has been found.

4.3 Students' Mental Health

We proceed with an analysis of mental health as the dependent variable. The results of the OLS models are presented in table 4.

Table 4. OLS Regression Models' Output. Dependent Variable Mental Health.

	Czech Republic			Italy			Slovenia		
	Coeff	**P-val**	**Sig**	**Coeff**	**P-val**	**Sig**	**Coeff**	**P-val**	**Sig**
Const	3.527	<0.001	***	8.474	<0.001	***	1.589	0.020	**
Health Physical	0.343	<0.001	***	0.003	0.893		0.476	<0.001	***
Life Satisfaction	0.235	<0.001	***	-0.004	0.876		0.256	<0.001	***
Population Medium	-0.359	0.004	***	-0.381	0.055	*	0.294	0.003	***
Population Large	-0.588	0.007	***	-0.079	0.817		-0.170	0.478	
Commuting Time	-0.005	0.051	*	-0.002	0.637		0.006	0.011	**
Sport Time	-0.003	0.710		0.008	0.608		-0.004	0.636	
TV Time	-0.014	0.337		0.013	0.574		0.048	0.003	***
TVTime2	<0.001	0.207		<0.001	0.905		-0.001	0.057	*
Friends Time	0.003	0.417		-0.004	0.679		0.005	0.337	
Soc Networks Time	-0.005	0.478		0.021	0.046	**	-0.009	0.208	
SocNetworks Time2	<0.001	0.776		<0.001	0.171		<0.001	0.606	
Art Time	-0.010	0.277		0.022	0.246		-0.012	0.173	
Religious Spiritual	-0.076	<0.001	***	-0.035	0.081	*	0.020	0.191	
Cigarettes	0.020	0.144		0.002	0.863		0.031	0.011	**
Alcohol	-0.025	0.393		-0.051	0.074	*	<0.001	0.994	
Alcohol2	<0.001	0.993		0.003	0.050	*	<0.001	0.714	
Marijuana	-0.273	0.070	*	-0.065	0.636		-0.047	0.730	
Allowance Log	-0.011	0.745		-0.027	0.798		-0.018	0.500	
Earnings Log	-0.009	0.730		-0.203	0.046	**	0.033	0.094	*
Regular Breakfast	0.050	0.001	***	0.014	0.602		0.054	<0.001	***
Discriminated Feel	-0.085	0.001	***	-0.013	0.591		-0.040	0.077	*
Relationship Parents	0.162	<0.001	***	0.003	0.947		0.129	<0.001	***

Partner	-0.046	0.682		0.109	0.479		0.077	0.432	
Nature Important	0.006	0.776		0.014	0.595		0.058	0.007	***
Gender Female	-0.182	0.113		-0.016	0.890		-0.412	<0.001	***
Age	0.014	0.725		0.031	0.643		-0.061	0.098	*
Model criteria	N=1564, R2 = 0.295			N=800, R2 =0.044			N=1477, R2 =0.387		

Based on the regression results in the previous subsection, it could be expected that the relation between physical health and mental health would be found only in the Czech Republic and Slovenia. Again, the results concerning Italians are very different from the models concerning Czechs and Slovenians; neither physical health nor life satisfaction are related to mental health in Italy. Since the reason is probably based on different cultural schemes and backgrounds, it cannot be determined from our data.

Another observation that can be drawn from the table is that unlike in the previous models, significant variables concerning population have been found. Here reverse causality (mental health to population of the municipality) is very unlikely. Since both of the population dummy variables are significant in the Czech Republic with a negative sign and variable population large has a lower coefficient than variable population medium, it seems that the bigger the Czech town, the more stress there is. This would confirm the results of Kumari (2016) who found that students from larger towns are more susceptible to depression. However, we found different relations in Slovenia. With other factors fixed, Slovenian students from medium-sized towns report higher values of mental health. This result too can be supported by previous studies (see, e.g. Geiken 1969 or Zarzycka et al. 2014). Thus, it is likely that larger towns and cities can be more stressful in the Czech Republic while Slovenian towns are a better place to live in as far as mental health is concerned. In Italy, no relationship between the population of the municipality and mental health was found; this again shows that the Italian structure of factors of well-being differ from other countries in question. The fact that variables concerning population have been found significant again supports the previous claim that one's health and their perception of it has a lot to do with sociological background.

The fact that sport activity is not a significant factor in any country can be surprising for both scientific and non-scientific public. This result doesn't correspond to previous studies investigating the effect of sport activities on mental health (see, e.g., Swann et al. 2018 or Southerland et al. 2016). This finding creates a complication for all therapists who recommend sport as prevention from mental problems. However, it is possible that the positive influence of sport activity on mental health appears only in the later phases of life.

There is a positive relation of smoking cigarettes with mental health in Slovenia. Peltzer and Pengpid (2013) discovered a negative relation between tobacco usage and the happiness of a student. It could be that smoking cigarettes has some positive effect on the psychological harmony of the students and the negative effect on physical health has not yet manifested at their age (as is seen in the previous model for Slovenia). In this case, being a smoker would mean gaining a little bit of extra mental harmony in exchange for the deterioration of one's physical health in one's later phases of life as is suggested by Woloshin et al. (2008) and Gajalakshmi et al. (2003).

The variable regular breakfast is significant with a positive coefficient in the case of the Czech Republic and Slovenia. Both coefficients have almost the same magnitude saying that having breakfast regularly in comparison with not having breakfast at all is connected with an increase in mental health by half of a point, which can be seen as a very strong association. Based on theoretical knowledge and the methodology of Liu et al. (2013) this variable was used as a proxy variable for leading a structured life. Our results correspond with the findings of Schnettler et al. (2015) who have shown that good eating habits have a positive effect on students' happiness. If the "breakfast to health" causality applies here, it can be said that living in a structured way influences how the students feel mentally but does not have any effect on their physical health. Here again, it is possible that the effect on physical health will manifest itself in later phases of life. Also, in Italy this relationship has not been found. Thus, it can be seen as puzzling that the proportion of Italians who have regular breakfast is significantly higher (confirmed by t-test) than is the case in the Czech Republic and Slovenia (see table 2). However, these results are not contradictory; they only serve as a good example of the fact that significance of a variable in the regression model is quite a different phenomenon than is the relative proportion of the students who engage in the corresponding activity.

Another variable positively related with mental health in the Czech Republic and Slovenia is the relationship with one's parents. Lambert et al. (2014) found that good connections and meals with family are a predictor of a happier life among students. The same result was found by Schnettler et al. (2015). These two studies along with our results confirm the importance of family relationships that are so much emphasized by psychologists (see e.g., Dinisman et al. 2017; Samm et al. 2010 and Wang and Sheikh–Khalil 2014). The coefficients are extremely high: having a perfectly harmonious relationship with family in comparison with a completely damaged relationship is connected with an increase in mental health by 1.62 in the Czech Republic and by 1.29 in Slovenia. Although it is most likely that the inverse causality applies here too, these results indicate that family relationships are of great importance to teenagers.

Although there is no significant difference in the physical health between boys and girls, Slovenian girls on average experience lower mental harmony. It is possible that the life of young girls in Slovenia and possibly in other countries as well may be more complicated and thus creates more anxiety.

As in the Slovenian model regarding physical health, watching TV has been found to be a significant factor in the case of Slovenian mental health as well. Feeling discriminated has been found to be significant but this time in the Czech Republic. These results again demonstrate the importance of social background as far as health perception is concerned. It is for example possible that the content watched on TV by Slovenian students influences their psychological well-being. However, this phenomenon is difficult to assess based on our quantitative data. A more detailed qualitative study could prove useful in this case.

The importance of sociological conditions is also supported by the fact that in the case of Italy, the variables Age (in the model with dependent variable physical health) and Social Networks (in the model with dependent variable mental health) have been found to be significant. In general, our study clearly shows that Italian sociological background is quite different. These structural differences are to a large extent responsible for the different well-being structures and predictors among Italian students.

4.4 Students' Life Satisfaction

The results of the OLS regression models analyzing the relations between life satisfaction and other variables are shown in table 5.

The variable physical health is significant in one model (Czech Republic) and the variable mental health in two models (Czech Republic and Slovenia). This could mean that for teenagers' happiness, mental harmony is of greater importance than physical health. A student can probably cope much better with a physical deficiency than with psychological problems.

As in the previous model, the variable sport time is not significant in any of the three models. Finding no relation between sport and life satisfaction contradicts many other studies: Huang and Humphreys (2011), Omorou et al. (2013) and Balish et al. (2016). For example, Niedbalski (2018) found that sport participation has a positive effect on life satisfaction, personal growth and self-confidence. This contradiction cannot be explained using our data and should be re-examined in further research.

Table 5. OLS Regression Models' Output. Dependent Variable Life Satisfaction.

	Czech Republic			Italy			Slovenia		
	Coeff	**P-val**	**Sig**	**Coeff**	**P-val**	**Sig**	**Coeff**	**P-val**	**Sig**
const	5.931	<0.001	***	9.225	<0.001	***	4.716	<0.001	***
Health Physical	0.082	0.001	***	-0.018	0.588		-0.033	0.200	
Health Mental	0.145	<0.001	***	-0.008	0.876		0.217	<0.001	***
Population Medium	0.283	0.004	***	-0.598	0.031	**	0.111	0.219	
Population Large	-0.195	0.257		0.378	0.426		0.131	0.552	
Commuting Time	-0.007	<0.001	***	0.011	0.081	*	-0.004	0.058	*
Sport Time	0.008	0.237		-0.008	0.710		0.016	0.054	*
TV Time	-0.011	0.334		-0.022	0.505		0.003	0.839	
TV Time2	<0.001	0.589		<0.001	0.987		<0.001	0.876	
Friends Time	0.007	0.038	**	-0.007	0.638		0.009	0.057	*
Soc Networks Time	-0.009	0.111		0.028	0.059	*	-0.006	0.355	
Soc Networks Time2	<0.001	0.215		<0.001	0.106		<0.001	0.485	
Art Time	-0.007	0.338		0.060	0.023	**	0.021	0.008	***
Religious Spiritual	0.045	0.005	***	0.020	0.484		0.039	0.006	***
Cigarettes	-0.038	<0.001	***	-0.043	0.009	***	-0.007	0.561	
Alcohol	0.015	0.526		-0.040	0.321		0.001	0.975	
Alcohol2	<0.001	0.930		0.001	0.618		<0.001	0.698	
Marihuana	0.205	0.083	*	-0.261	0.168		-0.252	0.045	**
Allowance Log	0.100	<0.001	***	0.051	0.724		0.001	0.971	
Earnings Log	0.048	0.020	**	-0.270	0.056	*	0.049	0.007	***
Regular Breakfast	0.006	0.652		0.033	0.382		0.030	0.023	**
Discriminated Feel	-0.057	0.004	***	-0.061	0.073	*	-0.031	0.135	
Relationship Parents	0.171	<0.001	***	0.012	0.830		0.097	<0.001	***
Partner	0.258	0.003	***	0.322	0.134		0.300	0.001	***
Nature Important	0.002	0.905		0.084	0.025	**	0.039	0.048	**
Gender Female	-0.104	0.247		-0.250	0.119		0.012	0.894	
Age	-0.083	0.008	***	-0.149	0.112		0.020	0.550	
Model criteria	N=1564, R^2 = 0.226			N=800, R^2 = 0.083			N=1477, R^2 =0.168		

In the Czech Republic and in Slovenia there is a positive relation between being religious or spiritual and happiness. Here too we cannot rule out the "happiness to independent variable" causality but it seems quite natural that spiritual life has a positive effect on happiness. There are many studies which observe the positive effect of religion on mental harmony (Nooney and Woodrum 2002;

Sanders et al. 2015; Proeschold–Bell et al. 2015). However, our results from the Czech regression model in the previous section show a negative relation between being religious or spiritual and mental health. The contradiction with results from the regression models concerning happiness can probably be explained when we take into account both causality directions. It is possible that young people who do not experience psychological harmony often take refuge in religion. This attitude then makes them happier when comparing them with their peers. Our results prove that the religious and spiritual aspect of young peoples' lives shows high complexity.

The variable cigarettes is significant in two models with a negative coefficient. This may signify either that the overall effect of smoking on students' well-being is negative or the students who are less happy tend to smoke more often. Our data is insufficient for determining what is more likely but it is possible that both effects apply.

Being involved in an artistic activity is positively related with happiness in Italy and Slovenia. Indeed, the effect of art on one's quality of life has been documented many times (see e.g. Heenan 2006; Pizzarro 2004 or Stacey and Stickley 2010). Why this has not been confirmed among Czech students we can only hypothesize. It is for example possible that the positive effect of art is countered by the fact that creating art is not considered as a "cool" thing to do among Czech teenagers. Also, it is possible that the inverse causality applies in Italy and Slovenia and happier students tend to enjoy the pleasure of artistic activities more often. A detailed analysis of these findings is beyond the scope of this study.

As in the previous models, the relationship with one's own parents is significant in the case of the Czech Republic and Slovenia, again with very high coefficients. This supports our previous claim that one's relationship with their parents is most likely one of the most important factors of young peoples' well-being.

Feeling discriminated has shown significance as it has in the previous models. Again, a negative relationship with the dependent variable has been found – this time in the case of the Czech Republic. These results correspond to the previous findings (see e.g. Straiton et al. 2019 or Wallace et al. 2016). This again highlights the importance of one's feelings about themselves. Although it is possible that the happier and healthier students are, the less discriminative abuse they experience, while it is also likely that the opposite causality applies as well: being discriminated deteriorates one's perception of their health and their happiness. Although not entirely impossible, in the countries which are the subject of our study it is unlikely that being discriminated correlates with direct physical abuse - all of these countries implement strict rules concerning safety

in their schools. Therefore, it is highly probable that social exclusion influences student's well-being.

As in the previous sub-sections, we thus emphasize the social aspect of one's health and happiness, which has been described before (see, e.g. Suldo et al., 2016 or Taylor and Brown, 1988). Indeed, these results should be taken into account when considering future research on health and happiness – not only material factors but also social and relational aspects should be taken into account.

4.5 Limitations of the Study

The main limitation of this paper is the fact that our models show relations and not explicit causalities. Therefore, one should be careful with making final conclusions. To determine the causality direction, more detailed research is needed. This creates space for suggestions for further research – many relations discovered in this paper would deserve this type of analysis. Our results can be taken as a so-called "sketch" of the well-being map of students. From the definition, a sketch shows basic relations which should be investigated further.

As mentioned in the methodological section, we acknowledge the fact that the choice of the schools in our sample was not random. This does not pose a crucial obstacle to analyzing our data and interpreting the results but we recommend that the results of our study along with their implications are taken into account accordingly.

In many cases we offered a possible interpretation of the statistical results. As in the text, we highlight that these are only hypotheses. In order to make final certain conclusions, these would have to be supported by future research, possibly by qualitative analyses.

In this article, we discussed and offered an interpretation only for the factors which were significant in more models. There are other factors which exhibit a certain significance. All of these can potentially influence the physical health, mental health or happiness of students. However, a detailed analysis of all of them is not possible to achieve in one study. We offer these other factors as possible targets for future research.

5 Conclusion

Our analysis is based on comparing coefficients from regression models. Upon making such observations, there are specific conclusions that we can make. Firstly, it is apparent that regression results from the models concerning the Czech Republic and Slovenia are more alike than the results from Italy. This difference is most apparent in the models studying relations with mental health. Also, the correlation coefficients between physical health and mental health are

more similar in the case of the Czech Republic and Slovenia. It is very unlikely that these differences would be a mere coincidence. Rather it is probable that the behavior, values and preferences of the Czech and Slovenian students are more similar in comparison than with the Italians. Possibly, this could in part be explained by the fact that the Czech Republic and Slovenia are both countries with the majority of population being Slavic and sharing large part of their history, which does not apply to Italy. The values and preferences of the society may depend on the cultural and ethnic history of the countries' citizens. However, this suggestion would have to be tested before going further with it.

Although there are many similarities between the three models, the differences are substantial for us to be able to make the claim that the predictors of health and happiness in each country are different. A specific type of school was selected for our analysis. Therefore, it would be unwise to generalize the results for all students in the country, much less for all European countries or the whole world. Social context must be taken into account especially when making recommendations to students as to how it is possible to improve their lives. We recommend a similar analysis be conducted in a different social space, e.g. outside of Europe, to compare the achieved results with our findings.

Our results confirm the tight dependency of physical and mental health. Both attributes are also connected with reported life satisfaction. As our results indicate a stronger relationship between mental health and life satisfaction in comparison to the relation between physical health and life satisfaction, more emphasis should probably be put on mental harmony. Other factors related to mental health, physical health or life satisfaction each create space for individual recommendations based on the type of relations (positive or negative).

In general, it is likely that the factors and their importance which were discovered in our study differ from what people think. Therefore, our results offer insight which can be valuable when making future decisions.

Lastly, by finding many social and relational factors associated with student's health and happiness, our study emphasizes the sociological aspect of personal well-being.

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