

GENERAL TRENDS IN SELF-RATED
SUBJECTIVE HEALTH AND WELLBEING
IN BULGARIAN ADOLESCENTS:
DATA FROM A REPRESENTATIVE STUDY
“HEALTH BEHAVIOR IN SCHOOL-AGED CHILDREN”
IN 2017/18 AND A COMPARATIVE ANALYSIS

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Abstract: Objective: The aim of this paper is to describe and analyse the data concerning the subjective health of Bulgarian adolescents from the “Health behavior in school-aged children” study carried out in 2018, and to compare our data to the international data as well as with the results from the previous wave.

Methods: A national representative sample of 4548 Bulgarian students aged 11-, 13- and 15 years was investigated as part of the international network “Health behavior in school-aged children”. All of them filled in a computer variant of the questionnaire. The adolescents rated their health by means of three different instruments – Self-rated health, Psychosomatic complaints and Life satisfaction. Written consent was given by the parents for all of the participating students.

Results: Bulgarian adolescents as a whole show the main tendencies outlined in the international study: age, sex and family wellbeing prove to be important factors that have an impact on subjective health: at age 15 adolescents have lower levels of life satisfaction, are less likely to report excellent health and experience more frequent health complaints, more pronounced for girls; adolescents from high affluence families report higher levels of excellent health and life satisfaction and lower levels of health complaints compared to those coming of low affluence families. On the other hand, Bulgarian adolescents occupy some of the leading places for reporting nervousness and irritability, as well as multiple health complaints. The 2018 survey shows slight positive change in self-rated health and life satisfaction but at the same time an increase in subjective health complaints that is entirely due to the increased rate for boys.

Relevancy and contributions: This report shows how indeed adolescents feel about their health that can be used to monitor progress on health priorities and compare with other similar countries/regions. The

results allow us to identify key challenges at different life stages and highlight priority areas for action. The differences in findings provide a road map to engage across sectors to promote the health and well-being of adolescents, as well as to improve and equalize health inequalities in adolescence.

Keywords: self-rated health; psychosomatic complaints; life satisfaction; health behavior in school-aged children (HBSC); adolescents aged 11; 13 and 15 years.

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Contribution:

Evelina Bogdanova – Abstract, Introduction, Methodology, Data processing and graphics, Results & Discussion, Conclusions, References.

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Conventionally, data on health are obtained from national morbidity and mortality statistics. While morbidity and mortality are important indicators of health, they may offer limited information in childhood and adolescence. Data on children's and adolescents' subjective well-being and subjective health, health related behaviours and quality of life therefore may be more informative. That is especially true today because in modern societies, the most challenging health problems can be described as problems of functional limitations rather than defined medical disease

The Health Behavior in School-aged Children (HBSC) is a unique cross national network in collaboration with the World Health Organization (WHO) Regional Office for Europe that focuses on adolescents' health and health behaviors. It is conducted every four years in 50 countries and regions across Europe and North America. The survey encompasses almost all aspects of children's and adolescents' health and health behaviors and presents as a result a complete insight into the problems of this age group.

Bulgaria has participated in three survey waves: in 2005/06 for the first time and in two successive waves in 2013/14 and in 2017/18. The studies in our country were conducted in line with the international protocol; the structured International standard questionnaire, developed for the network and translated and adapted for each country, was applied.

Being in good health is a very important factor in adolescents' growth. Good health is a state of complete physical, mental and social well-being and not only the mere absence of illness and disability (WHO, 1948). Much more attention is focused on personal subjective feelings of health and wellbeing that coin the new term subjective health, and psychological and somatic complaints, self-rated health and life satisfaction are viewed as its different aspects (Ravens-Sieberer et al., 2009). That is why in recent years these psychosocial measures of health are so im-

portant when states of health and illness are concerned (Piko & Keresztes, 2007).

The results for subjective health and well-being of Bulgarian adolescents as measured in the last 2017/18 survey wave are presented here as well as comparisons with the international data and data from the previous survey.

SELF-RATED HEALTH

Self-rated health is an important indicator of positive health and one of the aspects of adolescents' subjective wellbeing. It is supposed that young people make an evaluation founded on age-peer comparison either consciously or unconsciously. Self-rated health captures an overall perception of health that stands behind the WHO's definition, i.e. health is more than the mere absence of illness and disability (WHO, 1948).

The question "Would you say your health is.....?" includes four response categories: excellent – good – fair – poor. In this survey more than half (57%) of the investigated students rated their health as "excellent"; 38,5% rated it as "good", and the remaining 4,5% reported "fair" or "poor" health. (fig. 1).

The percentage of children reporting "excellent" health decreased with age (from 63,6% at 11 yrs, 57,4% at 13 yrs to 50% at 15 yrs) and a relative increase of those reporting "good" health was observed – at the age of 11 they were 33,7%, at 13 – 37,8% and at 15 – up to 44%.

The observed differences are statistically significant ($\chi^2 = 62.82$; $p < 0.001$)¹. There is some although small increase in the percentage of children reporting "fair" health – from 2,1% at age 11,4% at 13 and 4,6% at 15 yrs. The prevalence of those that rate their health as "poor" is insignificant (0,9%).

Some small differences in self-rated health between boys and girls were found (boys reporting "excellent" health were 59% and girls – 55,2%; "good" – boys 36,7% and girls 40,2%). The observed differences are due to

¹ The differences among the three age groups are evaluated by means of Kruskal-Wallis nonparametric test.

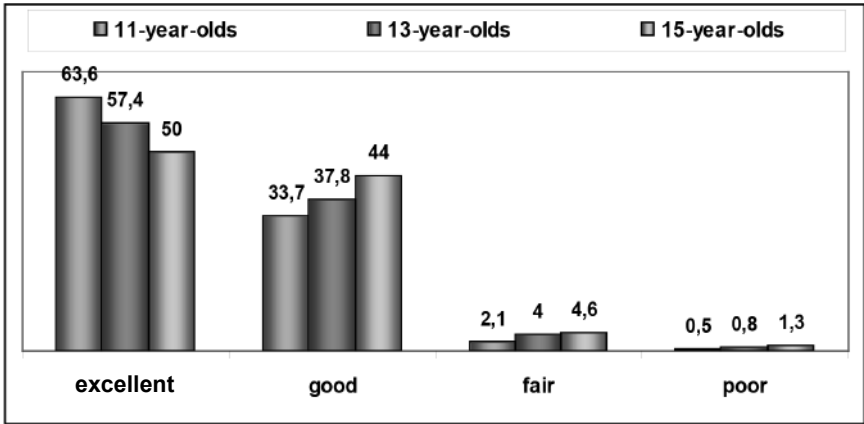


FIGURE 1. PROPORTION (IN %) OF ADOLESCENTS FROM DIFFERENT AGE GROUPS ANSWERING THE QUESTION “WOULD YOU SAY YOUR HEALTH IS.....?”

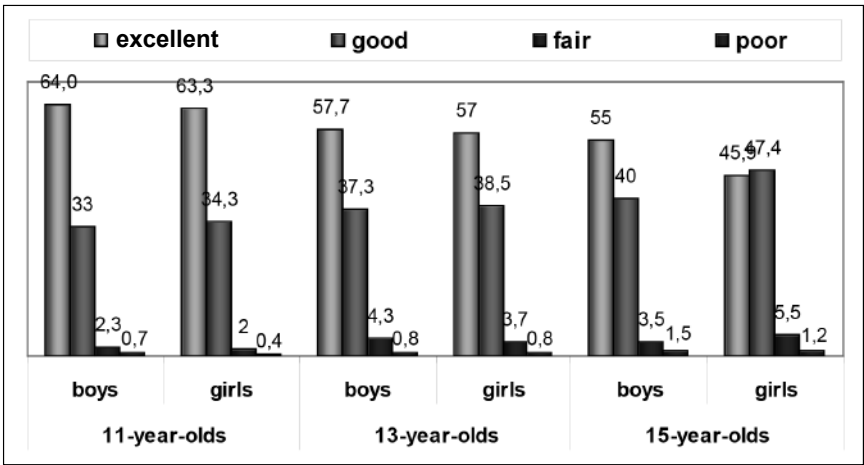


FIGURE 2. PROPORTION (IN %) OF BOYS AND GIRLS FROM DIFFERENT AGE GROUPS ANSWERING THE QUESTION “WOULD YOU SAY YOUR HEALTH IS.....?”

the 15-year-old group: while in the younger groups boys and girls report “excellent” and “good” health almost equally, at age 15 there is a statistically significant difference ($U = 258099$; $p < 0.001$; with small effect size $r = .09$). (fig. 2).

As a whole boys rate their health as “excellent” more often than they rate it as “good”; for girls the category “excellent” is most often reported at age 11 and 13 while girls at 15 rate their health predominantly as “good”.

International comparisons

The international data overview (Inchley J., Currie D., Budisavljevic S., Torsheim T., Jåstad A., Cosma A. et al., 2020) indicated that one in three adolescents rated his/her health as “excellent”. Among the 45 countries and regions that took part in the last wave survey Bulgaria takes one of the first five positions (5th place for children aged 11, the first four positions being occupied by North Macedonia, Albania, Serbia and Kazakhstan; ado-

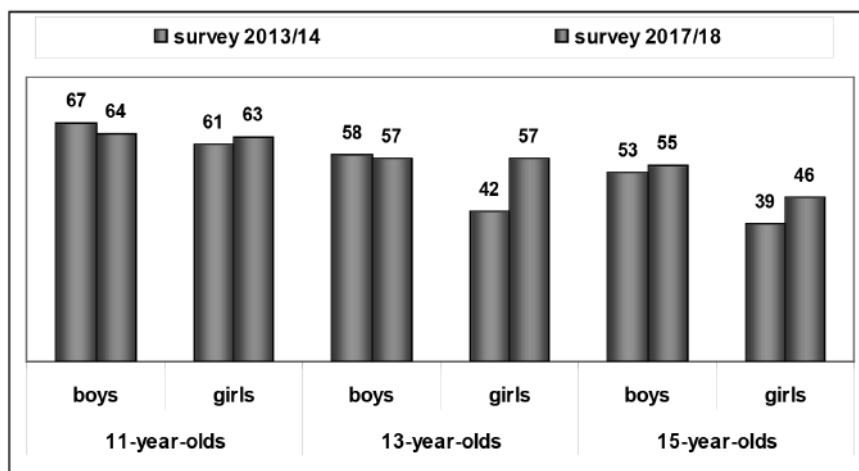


FIGURE 3. 2013/14 AND 2017/18 DATA COMPARED - PROPORTION (IN %) OF BOYS AND GIRLS FROM DIFFERENT AGE GROUPS WHO RATE THEIR HEALTH AS "EXCELLENT".

lescents aged 13 and 15 are forth following the three Balkan countries North Macedonia, Albania and Serbia).

The data presented in the international report claim two prominent trends in self-rated health:

Less students rated their health as "excellent" with increasing age. For the Bulgarian sample the observed age differences are statistically significant.

The international report revealed that boys as a group rated their health higher than girls and these differences are statistically significant ($p < 0.05$) for each age group. For Bulgarian adolescents this significance holds true only for age 15.

2013/14 and 2017/18 data compared

Overall, a small difference in the proportion of students that rated their health as "excellent" in the two surveys was found: in some countries there was a small increase, in others – a small decrease, and in about half of the participating countries and regions no change was observed. Exceptions made Albania where an increase of about 20% in each age group was found and Belgium/Flemish with a decrease of about 20% for the 11-year olds – for boys as well as for girls. (fig. 3)

The trends observed in the last two surveys, 2013/14 and 2017/18, are also valid for Bulgarian adolescents. More boys at ages 11 and 13 from the 2013/14 study rated their health as "excellent" compared to their peers in the last study, albeit these differences are not statistically significant. A significant increase in the proportion of girls reporting "excellent" health was found in the 2017/18 survey, statistically significant for ages 13 and 15 ($p < .05$).

SUBJECTIVE HEALTH COMPLAINTS

In recent years researchers pay much more attention to complaints related to health in childhood and adolescence. These include not only somatic complaints such as headache, backache, etc., but psychological symptoms as well – nervousness and feeling low. These psychosomatic symptoms per se are called health complaints in HBSC reports in order to underlie that the term does not reflect any pre-assumptions about aetiology and the direction of the causal biological or psychological underlying mechanisms but simply reflect what children experience and report. Studies investigating health complaints are measured since 1986 by the HBSC Symptom

Checklist (HBSC-SCL) that includes two dimensions - psychological and somatic (this measure is also referred to as “psychosomatic complaints”). The data analyses from several successive HBSC surveys suggest that health complaints constitute two highly correlated dimensions of subjective health complaints.

Children were addressed with the question: **In the last 6 months: how often have you had the following: headache, abdominal pain, backache, feeling low, irritability or bad mood, feeling nervous, dizziness, sleeping difficulties?**

Each of the psychosomatic complaints has a significant increase with age ($\chi^2 = 40,7 \div 156,4$; $p < 0.001$). There are significant differences between boys and girls (with the exception of backache); girls reported more complaints: headache ($U = 2438217$; $p < 0.001$; $r = .06$), abdominal pain ($U = 2307014$; $p < 0.001$; with moderate effect size $r = .1$), feeling low ($U = 2459036,5$; $p < 0.001$; $r = .05$), irritability ($U = 2363321$; $p < 0.001$; $r = .08$) and sleeping difficulties ($U = 2431078$; $p < 0.001$; $r = .06$); less for nervousness ($U = 2473062$; $p < 0.01$; with low effect size $r = .04$) and dizziness ($U = 2495724$; $p < 0.01$; $r = .04$).

According to the reported rate of the complaints four groups could be considered – 1. “about every day” and “more than once a week” (the first two answer categories combined); 2. “about every week”; 3. “about every month” and 4. “rarely or never”.

Here is the distribution of students that reported complaints “about every day” and “more than once a week”:

- Nervousness – 39,1%
- Irritability or bad mood – 32,6%
- Sleeping difficulties – 24,8%
- headache – 17,2%
- feeling low – 15,3%
- abdominal pain – 12,9%
- backache – 12,8%
- dizziness – 11,1%

As shown the psychological complaint nervousness was reported most often, followed by irritability. One third of all children reported irritability or bad mood “about every day” and “more than once a week”; and more than one third – 39,1% - nervousness. These complaints were more pronounced for girls ($U = 2500702$; $p < 0.05$; $r = .03$ for nervousness and $U = 2411334$; $p < 0.001$; $r = .07$ for irritability).

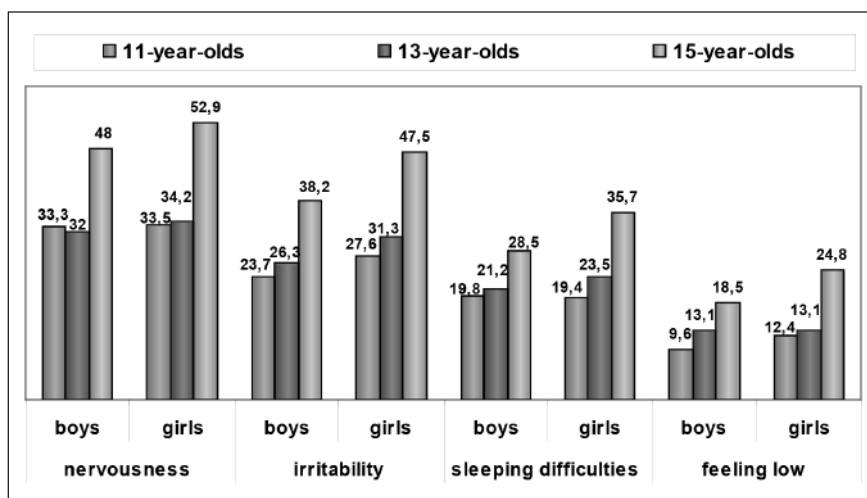


FIGURE 4. PROPORTION (IN %) OF BOYS AND GIRLS FROM DIFFERENT AGE GROUPS WHO REPORT PSYCHOLOGICAL COMPLAINTS “EVERY DAY” OR “MORE THAN ONCE A WEEK”.

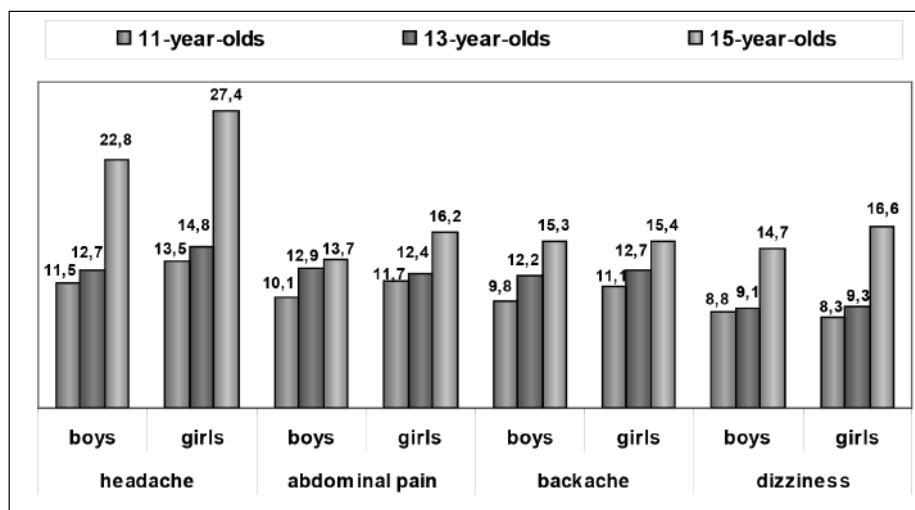


FIGURE 5. PROPORTION (IN %) OF BOYS AND GIRLS FROM DIFFERENT AGE GROUPS WHO REPORT SOMATIC COMPLAINTS EVERY DAY OR MORE THAN ONCE A WEEK.

About half of all 15-year-old students reported being nervous “about every day” and “more than once a week”. A sharp rise in nervousness from age 13 to age 15 was found and it is statistically significant ($U = 934203$; $p < 0.001$; $r = .15$). There is a similar increase in irritability. (fig. 5).

The most often reported somatic complaint was headache, with a statistically significant increase with age for the 15 year olds – for boys as well as for girls. Adolescents at age 15 reported twice as more often headaches compared to those at ages 11 and 13 ($U = 1002976,5$; $p < 0.001$; $r = .12$).

International comparisons

There was a prevalence of psychological complaints in adolescents from all the participating countries - nervousness (25%), irritability (25%), sleeping difficulties (24%) and feeling low (18%). The proportion of students reporting somatic complaints was definitely lower: headache (15%), backache (13%), abdominal pain (10%) and dizziness (10%).

The rate of individual psychosomatic complaints in Bulgarian adolescents presented an almost complete coincidence with the average HBSC data with one exception – headache was more often reported than feeling

low; they were classified in the middle among the other 44 countries and regions or in the third ten. There was an exception which concerns the two most prominent psychological complaints – nervousness and irritability – our students ranked among the first of all participating countries: 11- and 15- year olds were second for feeling nervous and 4th for feeling irritable; the 15- year olds were sixth for sleeping difficulties and forth in reporting headache; 13- and 15- year olds were on the 4th and the 5th places respectively.

The international report highlighted the following general trends for individual health complaints:

The prevalence of health complaints increased with age in almost all countries/regions but some differences between girls and boys are observed.

Girls were more likely than boys to report health complaints “about every day” and “more than once a week”.

An increased rate of irritability, feeling nervous, feeling low, headache and backache with age for girls was found in almost all countries; true for boys in less than half of the countries. The largest differences between ages 11 and 15 were found for the complaint irritability (13% for Bulgarian boys and 31%

for Greek girls) and for feeling low (19% for Azerbaijan boys and 27% for English girls).

This trend for increased prevalence of psychosomatic complaints with age was observed for each of the eight complaints in Bulgarian adolescents. The most prominent increase was found for nervousness, irritability and headache, especially for girls.

The international data indicated that the largest differences (with more than 10%) between boys and girls were demonstrated in irritability, feeling nervous and feeling low. For Bulgarian adolescents significant differences were observed in irritability for 13- and 15-year olds; in sleeping difficulties for 15-year olds and in feeling low for 11-year olds.

2013/14 and 2017/18 data compared

The data from the two successive surveys in Bulgaria, conducted in 2014 and 2018, on the frequency of reported individual health complaints “about every day” and “more than once a week” revealed the following general trends:

An increase in the rate of individual health complaints in the survey 2017/18 compared to 2013/14 was found. This holds true for all of the psychological complaints (nervousness, irritability, sleeping difficulties and feeling low) and for two of the somatic complaints (backache and dizziness). Abdominal pain was reported almost equally in both surveys and only for headache some decrease was observed (tab. 1).

An increase of all psychosomatic complaints was observed in boys, and for some of the age groups they are statistically significant: feeling nervous and irritability at ages 11 and 15; sleeping difficulties at age 15 and feeling low at ages 13 and 15. There is a significant rise for abdominal pain at ages 13 and 15, and for headache and dizziness at age 15.

The opposite was observed in girls – the prevalence of the reported complaints was either the same or less in the last study compared to the 2013/14 one. There was a significant decrease in the rate of the psychological complaints *nervousness, irritability and feeling low* for 13 year old girls, as well as of the somatic complaint *headache* for 13 and 15 year old girls.

MULTIPLE HEALTH COMPLAINTS

Subjective health complaints tend to cluster together (two or more) and are viewed as a syndrome named multiple health complaints: children report two or more subjective health complaints manifested at the same time “about every day” and “more than once a week”.

These complaints are found in 46,2% of all investigated subjects. An increase of multiple health complaints with age is observed: from 38,9% at age 11, 42,2% at age 13 to a very pronounced increase at age 15 – 57,5% ($\chi^2 = 120,4$; $p < 0.001$ for the whole sample; between ages 13 and 15 $U = 961073,5$;

TABLE 1

Psychosomatic complaint	2014	2018
nervousness	36.8%	39.1%
irritability	30.9%	32.6%
sleeping difficulties	22.9%	24.8%
feeling low	14%	15.3%
headache	19.8%	17.2%
abdominal pain	12.8%	12.9%
backache	10.8%	12.8%
dizziness	10.3%	11.1%

Some key differences by age for boys and girls were observed.

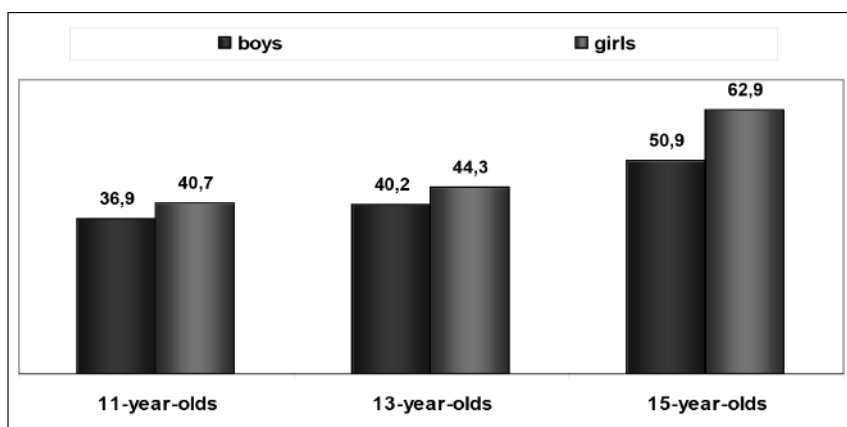


FIGURE 6. PROPORTION (IN %) OF BOYS AND GIRLS FROM DIFFERENT AGE GROUPS WHO REPORT TWO OR MORE PSYCHOSOMATIC COMPLAINTS.

$p < 0.001$; $r = .12$; no significant change between ages 11 and 13) (fig. 6).

Girls reported multiple health complaints much more often than boys ($U = 2396716$; $p < 0.001$; $r = .07$) and a significant increase with age for more than half of the studied girls at age 15 was found. It is impressive to see that even at age 11 more than 40% of girls reported such complaints.

About one half of all children (44,7%) reporting multiple health complaints presented with only two complaints. Most often these couples of symptoms included the psychological complaints: irritability and nervousness (27,4%), followed by nervousness and sleeping difficulties (13,4%), irritability and feeling low (9,6%) and irritability and headache (9,5%). About one eighth of all students reported three psychosomatic complaints and a significantly lower percentage were those that reported four, five or more complaints.

International comparisons

According to the international data one in three adolescents (35%) reported multiple health complaints but there was a big difference among the participating countries. For boys this indicator varied from 16% at age 11 in Spain to 51% at age 15 in Bulgaria. For girls the lowest prevalence was found at age 11 in Slovenia and the highest – 75%, was for the Italian girls aged 15.

We can say that the observed general trends in multiple health complaints repeat the outlined patterns of individual health complaints and these are:

Girls were more likely than boys (43% v/s 28%) to report multiple health complaints and this difference increased with age. Girls reported more multiple health complaints in 26 countries at age 11; in 40 countries at age 13 and in all countries at age 15.

The prevalence of multiple health complaints increased with age and this holds true for girls in almost all of the participating countries and for boys in one third of the countries.

The most prominent increase between ages 11 and 15 was found in girls in Slovenia (34%) and boys in Scotland (15%). As a whole the increase of multiple health complaints with age was much more pronounced for girls (from 33% at age 11 to 52% at age 15) compared to boys (from 27% at age 11 to 30% at age 15).

Spain made the only exception with a decline of the reported multiple health complaints with age for boys as well as for girls.

Bulgarian adolescents were among the first ten countries reporting a lot of multiple complaints (11-year olds ranked on the 4th place, 13-year olds - on the 8th and 15-year olds - on the 2nd). The delineated general trends in multiple health complaints by age and sex were observed in our adolescents as well.

2013/14 and 2017/18 data compared

Data from 2017/18 international report indicated a very small rise in the average of multiple health complaints reported by adolescents compared to the previous 2013/14 survey (35% v/s 33%). An increase of reported multiple complaints in the last survey was found in 26 countries while only three countries (Croatia, the Netherlands and Spain) had the opposite trend – a decrease compared to the previous study. In many countries the increase was due twice more often to boys than girls (26% v/s 14%). Spain was the only country in which the reported multiple health complaints in the last survey decreased in boys as well as in girls from all age groups, compared to the 2013/14 survey.

Bulgaria was among those countries in which an increase in multiple complaints in the last survey 2017/18 compared to the previous one was observed. This trend was more pronounced in boys, statistically significant for ages 11 and 15. A significant decrease in the reported multiple health complaints was found only for 13-year old girls (44% in 2017/18 v/s 50% in 2013/14).

LIFE SATISFACTION

Life satisfaction is an important concept within the science of positive psychology as well as in many neighbouring disciplines

(Gilman & Huebner, 2003; Veenhoven, 2012).

General life satisfaction is measured by the Cantril ladder adapted for the HBSC survey in 2001/02 (Ravens-Sieberger et al., 2007). Researchers claim that this is a measurement that places the emphasis on the evaluative cognitive aspects of subjective well-being and functions as an indicator of positive mental health. Mazur and colleagues studied key factors related to the Cantril Ladder in a Polish sample of adolescents and concluded that the Cantril Ladder can be considered a useful measurement tool for adolescent psychosocial health (Mazur et al., 2018).

Adolescents rated their life satisfaction on 11 item answer categories beginning from the bottom “0 - Worst possible life” to the top “10 - Best possible life”. In previous HBSC studies the responders with answers from 6 to 10 were categorised into those with normal to high life satisfaction.

That is why we first present those results based on this categorization.

The majority of adolescents felt satisfied with their lives – 85,8%. Differences were observed for different age groups – most satisfied with their lives were the 13-year olds, while the 11- and 15- year olds were almost equally satisfied (fig. 7).

The observed differences between the last two groups and the group of the 13-year olds

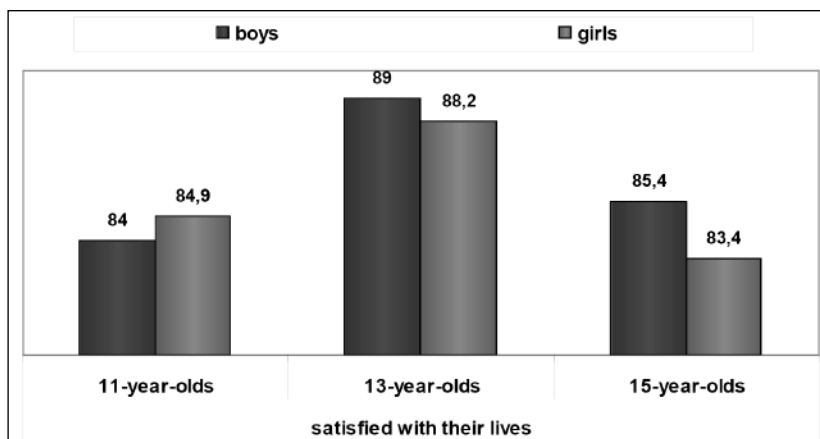


FIGURE 7. PROPORTION (IN %) OF BOYS AND GIRLS FROM DIFFERENT AGE GROUPS WHO FEEL SATISFIED WITH THEIR LIVES.

are statistically significant ($U = 1101346$; $p < 0.05$; $r = .04$ b/n the 11- and the 13-year olds, more pronounced for boys; for the 13- and 15-year olds $U = 1019941,5$; $p < 0.001$ respectively; $r = .09$, more pronounced for girls). No significant differences by sex were found for the sample as a whole but there is a small difference in the percentage of boys and girls in each of the age groups: at age 11 girls were more satisfied with life while at ages 13 and 15 boys reported higher life satisfaction.

When life satisfaction is categorized using the mean Cantril Ladder scores presented as the average score on a scale of 0–10, a certain change in the obtained results was observed. This change is best demonstrated by age dynamics: adolescents at ages 11 and 13 were equally satisfied (mean score 8,0; only for girls at 13 it is 7,9). There was a decrease for 15 year olds – 7,5 for girls and 7,6 for boys.

Categorization of life satisfaction on the basis of mean ladder scores in the last survey includes all given answers and not only responders with answers from 6 to 10, and that leads to different results. The reason this measurement is applied might be seen as an attempt to get a better understanding of subjective wellbeing in all participating students.

International comparisons

Data and all of the comparisons presented in 2017/18 HBSC international report used the mean Cantril Ladder score. Most adolescents reported high level of life satisfaction with average mean score 7,8 from 10, and the mean score was within the range of 7,2 (Malta) to 8,6 (Kazakhstan) for all participating countries.

Differences by age and sex of investigated adolescents were observed in most countries.

As a whole high life satisfaction was more prevalent among boys compared to girls. The largest differences between boys and girls were observed in Austria, Canada and Sweden. These differences increased with age and were most significant for 15 year olds in 2/3 of all countries. The smallest differences between boys and girls were found in countries with the highest level of life satisfaction.

The mean life satisfaction score decreased with age: from 8,3 at age 11 to 7,4 at age 15

and this was more noticeable for girls. The decline was better marked between ages 11 and 13 and most pronounced for boys from Malta (a decrease with 1.1) and girls from Greece (a decrease with 1.7).

In Bulgarian adolescents a decrease of mean life satisfaction with age was observed and this was somewhat more so for girls. It is impressive that Bulgarian 11 year old students are among the last ten countries according to their mean life satisfaction score (they took the 38th place out of 45 participating countries) while the 13 and 15 year olds rated much higher – 12th and 10th respectively. Boys at 13 and 15 had somewhat higher mean life satisfaction score compared to girls but this does not reach significance. No difference in this indicator was found between boys and girls at age 11.

2013/14 and 2017/18 data compared

Data from the international report demonstrated that life satisfaction had increased slightly since 2013/14 with mean score from 7,7 to 7.8 in the last survey wave 2017/18.

An increase was observed in 14 countries/regions, with Belgium (Flemish), Czechia and North Macedonia reporting the highest increases. A decline in life satisfaction emerged in only two countries (Austria and Malta).

The comparison of these two surveys in Bulgaria shows some differences according to the categorization criteria used to define life satisfaction.

When categorization includes responders with answers from 6 to 10 on Cantril ladder all the above described trends in age and sex are valid for the 2013/14 survey but the results from 2017/18 show some differences. In the 2017/18 survey a different dynamics with age was observed – the prevalence level of high life satisfaction (adolescents' scores from 6 to 10) was highest in the group of 13-year olds while 11- and 15- year olds presented with similar results. Differences between boys and girls were in line with the general trends with the exception of the 11- year old girls being more satisfied than boys (fig. 8).

The observed trends in age dynamics and sex differences remained valid for both surveys

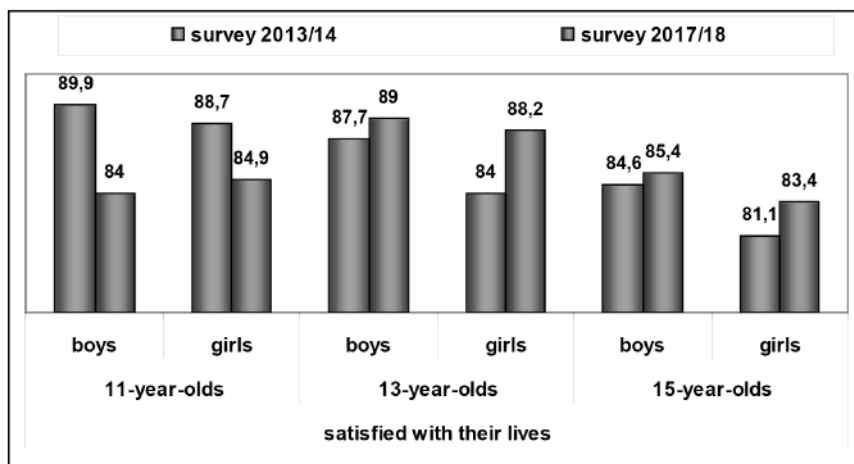


FIGURE 8. DATA FROM 2013/14 AND 2017/18 SURVEYS ON LIFE SATISFACTION COMPARED BY AGE AND SEX (IN %).

when compared using the mean Cantril Ladder score. There was a decline in the level of life satisfaction in 2017/18 only at age 11, statistically significant for boys as well as for girls (mean score decreased from 8,3 in 2014 to 8,0 in 2018 for both). The level of life satisfaction increased in 2017/18 for the other two age groups compared to the previous survey and this is statistically significant only for girls (At age 13 from 7,7 to 7,9 for girls and from 7,9 to 8,0 for boys; at age 15 – from 7,3 for girls to 7,6 and for boys is 7,6 in both survey waves).

Impact of socioeconomic inequalities on the studied subjective health measures

The HBSC international report focuses on the impact of socioeconomic family resources and family position for all of the studied health behavior measurements.

Countries and regions participating in the HBSC survey show a wide range of economic circumstances, from those classified as lower-middle-income countries and regions to some of the richest in Europe. Young people grow up in families with varying levels of socioeconomic resources and family affluence is

a robust determinant of adolescent health. In order to collect the necessary information HBSC uses an alternative measure, the Family Affluence Scale (FAS) (Currie et al., 2008; Torsheim et al., 2016; Elgar et al., 2017), which asks young people about material assets in the household. The HBSC 2017/2018 survey estimates socioeconomic position using a six-item assessment of common material assets or activities, such as possibilities for trips and vacations.

Responses are scored and summed to form a HBSC FAS summary score, designated FAS-III, which has been shown to provide a valid indicator of relative affluence (Torsheim et al., 2016). This summary score is used in the report to estimate relative socioeconomic position by comparing the individual's score for FAS with those of all other scores within their country or region. This summary score makes it possible to identify three groups of adolescents according to the family affluence - in the highest 20% (high affluence), middle 60% (medium affluence) and lowest 20% (low affluence), in each country and region (Elgar et al., 2017)².

² This approach to measuring health inequalities is the same as that used in the previous survey and assesses relative, not absolute, health inequality. The same summary score on the FAS may therefore correspond to medium affluence in a high-income country and high affluence in a low-income country.

The least-affluent 20% of adolescents in each country or region are compared to the most-affluent 20% in order to determine the impact of socioeconomic inequalities on the studied subjective health measures. This comparison is presented for the average HBSC data as well as for each country/region.

As far as self-reported health is concerned the relationship between family affluence and adolescents reporting their health as excellent was evaluated. The aggregated data for all countries that participated in the 2017/18 survey demonstrated the presence of statistically significant differences ($p < 0.05$) for this indicator. Only 28% of girls coming from low affluence families rated their health as excellent while for those from high affluent families the percentage was 39%. Respectively 36% was the percentage of boys from low affluence families and 48% from high affluent families.

Bulgarian adolescents presented with statistically significant differences only for boys – 52% of boys coming from low affluence families rated their health as excellent compared to 66% of those from high affluent families; the family affluence did not influence significantly girls reporting their health as excellent (54% low affluence families and 58% for high affluent families, respectively).

A relationship between family affluence and each of the psychosomatic health complaints was observed only in some countries. Overall higher level of individual complaints was reported by adolescents from low affluence families. The international report data pointed to greatest social inequalities when the psychological complaint *feeling low* was concerned. In more than one third of all countries adolescents coming from low affluence families demonstrated significantly higher levels of *feeling low*.

Bulgarian boys coming from low affluence families reported significantly more often ($p < 0.05$) *irritability*, *nervousness* and *abdominal pain* compared to their peers from high affluent families. It is interesting to mention that this does not hold true for girls – Bulgarian girls had a significant difference only for one complaint – dizziness, and it was more

often reported by girls coming from high affluent families.

As far as multiple health complaints are concerned

More adolescents from low affluence families reported having multiple complaints compared to those from high affluent families. This difference was observed in more than one third of the participating countries and it varied in about 5% for both boys and girls. The most pronounced differences were demonstrated in Scottish boys (42% from low affluence families and 21% from high affluent families) and English girls (55% v/s 37%).

In Bulgaria a significantly higher level of multiple health complaints was observed only for boys from low affluence families (48% v/s 37%). Family affluence did not influence multiple health complaints reported by girls.

Family affluence impacts life satisfaction

Adolescents from high affluent families reported higher life satisfaction compared to those coming from low affluence families. This difference holds true for almost all of the participating countries, including Bulgaria, and in our country this relationship is statistically significant ($p < 0.05$).

SUMMARIZED CONCLUSIONS/ SUMMARY

The descriptive data analysis from the 2018 survey in Bulgaria reveal that the general trends concerning the subjective health measurements are observed in Bulgarian adolescents:

- The percentage of children reporting excellent health decreases with age and this is more pronounced for girls, especially at age 15;
- The prevalence of psychosomatic complaints “every day” and “more than once a week” increases significantly with age with girls more likely than boys to report health complaints;
- Girls and older students are more likely to report multiple health complaints;
- The greater part of Bulgarian adolescents no matter boys or girls are satisfied with their lives;

- Adolescents – boys as well as girls, coming from high affluence families are more satisfied with their lives compared to those from low affluent families;
- Boys from high affluent families are more likely to report excellent health and less health complaints.

Some specific findings concerning Bulgaria:

- Family affluence has no significant impact on girls reporting excellent health and multiple health complaints;
- Overall most Bulgarian students rate their health as excellent and are ranked relatively ahead in the international classification (5th position for the 11-year olds and 4th for the 13- and 15- year olds);
- At age 13, 9 out of 10 adolescents report high life satisfaction;
- For Bulgarian adolescents the prevalence of individual health complaints *nervousness and irritability* is above the average of the international data – our students are among the first from all participating countries: 11- and 15- year olds are 2nd for reporting *feeling nervous* and 4th for *feeling irritable*;
- The 15- year olds are relatively ahead and when reporting some of the other psychosomatic complaints: they are on the 6th position for *sleeping difficulties* and on the 4th for *headache*;
- 13- and 15- year olds are on the 4th and 5th positions respectively for reporting *abdominal pain*;
- Bulgarian adolescents aged 15 are second in prevalence for reporting multiple health complaints, and those aged 11 – forth.

Data comparing the two successive HBSC survey waves in Bulgaria - 2013/14 и 2017/18 – reveal a slight positive change in adolescents' ratings of their health and life satisfaction and at the same time a rise in health complaints is observed, especially so for the psychological complaints *nervousness* and *irritability*:

- More girls report excellent health in the 2017/18 survey, statistically significant for

ages 13 and 15. For boys at ages 11 and 13 there is an opposite trend;

- An increase in the rate of individual health complaints in the survey 2017/18 compared to 2013/14 is found, due entirely to boys
- The opposite trend is observed for girls – the prevalence of the reported complaints is either the same or less in 2017/18 compared to the 2013/14. There is a significant decrease in the rate of psychological complaints *nervousness, irritability and feeling low* for 13 year old girls, as well as of the somatic complaint *headache* for 13 and 15 year old girls.
- an increase in multiple health complaints in the last survey 2017/18 compared to the previous one is observed and these are predominantly *nervousness, irritability and sleeping difficulties*;
- prevalence level of high life satisfaction shows an increase in the groups of 13- and 15-year olds in the last survey 2017/18 compared to the previous one, statistically significant only for girls. A significant decline in life satisfaction is observed for the 11-year olds in the last survey 2017/18, it holds true for both girls and boys.

CONCLUDING REMARKS

The observed positive changes in adolescent subjective health in the last survey 2017/18 could be viewed as reflecting the general efforts of all countries together and separately to promote healthy lifestyles. Adolescents report more often excellent health and are more satisfied with their lives.

Adolescence is a period of tremendous changes in biological, social and psychological factors that is why life satisfaction gives much more valuable information than some direct measurements such as symptoms and chronic disease. Life satisfaction is a very useful indicator that places the emphasis on strengths, useful not only per se but as a buffer against the emergence of psychological/mental problems.

These positive changes nevertheless are accompanied by the increase of psychosomatic complaints, individual as well as multi-

ple, and the persistence of social inequalities. Overall decline in mental well-being with increasing age is found and adolescents at age 15 have lower levels of life satisfaction, are less likely to report excellent health and the prevalence of health complaints is the highest. Across all participating countries/regions in the last study wave 2017/18 girls at age 15 report poorer mental well-being than boys and so they demonstrate the lowest level of psychological wellbeing.

International publications (United Nations Children's Fund, 2011; WHO, 2014) have pointed to the importance of the second decade of life: young people aged between 11 and 15 years face many pressures and challenges, including increasing academic demands and expectations, changing social relationships with family and peers, and increasing exposure to online interactions. Adolescence is a period of rapid physical, social and mental growth, and that is why it is so important to elaborate and apply appropriate health practices that will improve and equalize the observed inequalities. Data from the present study could be used to identify key challenges at different life stages and highlight priority areas for action.

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