TIME TRENDS IN ADOLESCENT MENTAL WELLBEING IN THE CZECH REPUBLIC BETWEEN 2002 AND 2018: GENDER, AGE AND SOCIOECONOMIC DIFFERENCES

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SUMMARY

Objectives: Recent literature indicates a decline over time in adolescent mental wellbeing but results are inconsistent and rely mainly on data from Western societies. This study investigates time trends in adolescent mental wellbeing (psychological and somatic complaints, life satisfaction) among Czech adolescents and explores the moderating role of gender, age and socioeconomic status.

Methods: Nationally representative data from 29,376 Czech adolescents (50.8% girls, mean age = 13.43; SD = 1.65) across five Health Behaviour in School-aged Children (HBSC) surveys (2002, 2006, 2010, 2014, 2018) were used. Hierarchical regression models estimated national trends in adolescent mental wellbeing and established the moderating role of gender, age and socioeconomic status.

Results: From 2002 to 2018, an increase in the psychological complaints was observed. Life satisfaction decreased over time up to 2014 only, whereas somatic symptoms increased until 2010, followed by a decline in 2014 and 2018. Girls, older adolescents and those from low family affluence reported poorer mental wellbeing. Gender gap increased over time for psychological complaints and life satisfaction. Socioeconomic inequalities gap remained stable over the investigated timeframe.

Conclusions: Our findings do not provide evidence for substantial temporal changes in mental wellbeing among adolescents in the Czech Republic. Yet, the increase in psychological complaints has been consistent which is an indicator of a small decline over time in adolescent mental wellbeing. Furthermore, the gender gap in mental wellbeing increased over time, whereas the age and socioeconomic differences remained relatively stable. This calls for the attention of public health professionals and policy makers from the Czech Republic.

Key words: adolescence, mental health, mental wellbeing, wellbeing, gender, trends, age, socioeconomic status, HBSC

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INTRODUCTION

Adolescence is a highly formative life stage for an individual's future health and wellbeing (1). More than half of adult mental health problems have their onset in childhood and adolescence (2) leading to adolescent mental health to be seen as a global and national public health priority (3). Previous literature has defined adolescent mental health as an overarching, multi-faceted concept that includes both mental health problems and the presence of subjective wellbeing (4). In the present paper, we focus on the latter aspect, which we refer to as mental wellbeing which encompasses evaluations of life satisfaction and psychosomatic complaints. Nowadays, adolescents report lower levels of wellbeing and more mental health problems than their peers one or two decades ago (5). Furthermore, there is a lack of systematic evidence on trends in adolescent mental wellbeing from Central and Eastern European countries. Therefore, this study seeks to fill in this data and knowledge gap by exploring the role of gender, age and socioeconomic status in the recent trends (2002 to 2018) in mental wellbeing in nationally representative cohorts of 11-, 13- and 15-year-old adolescents from the Czech Republic.

Trends in Adolescent Mental Health and Wellbeing

There is evidence pointing to a deterioration in the mental wellbeing of children and adolescents in developed countries, especially among older adolescent girls (4, 5). However, the findings reporting trends in adolescent mental wellbeing are rather mixed. A considerable number of studies found increasing time trends in mental health problems, especially internalizing problems,

among adolescents in many Western countries (6, 7). However, other studies exploring trends in adolescent mental wellbeing found rather a stable (8) or a decreasing trend (9) while others demonstrated either increase or decrease in mental wellbeing (4). To illustrate, a recent investigation in Finland found an increase in the incidence of internalizing symptoms, but only among girls (10). However, other studies in the United Kingdom, covering a similar time frame, report some stability or even an improvement in mental health overall (11). These inconsistent findings may be attributed to variation in survey methodologies employed (i.e., the conceptualization of the outcomes, number of assessment points, the length of the investigated time frame, or characteristics of the sample as the age of the respondents) but also due to country specific policies and culture around mental health.

Most of the studies on trends in adolescent mental wellbeing have been conducted in mostly Western societies, and their findings may not necessarily be generalizable to other countries or cultures (e.g., Central or Eastern Europe). Furthermore, only a limited number of studies have explored these changes over time in adolescent mental wellbeing in Central-Eastern European countries (12). This could be particularly of interest given that among adults, the transition of Central and Eastern European countries from communism to capitalism in the 1990s and the subsequent decade was reflected by a decrease and then a recovery in life satisfaction (13), which might have an impact on those age cohorts who are the parents of nowadays' adolescents. These transitions could have impacted the changes over time in mental wellbeing, and indirectly may impact the health of contemporary adolescents. For example, Cosma et al. showed that among 36 European countries, only in a few Central and Eastern European countries (including the Czech Republic) there was actually a linear improvement in adolescent mental health between 2002 to 2018 but this study did not explore whether the gender or socioeconomic gaps have increased in the aforementioned period (4).

Gender, Age, and Socioeconomic Differences in Trends in Adolescent Mental Wellbeing

Consistent gender, age and socioeconomic differences in adolescent mental wellbeing trends were reported (4, 5). Time trends analyses showed that compared to boys, girls are reporting increasingly more emotional problems (6), internalizing problems (5), lower life satisfaction and more multiple health complaints (4). Furthermore, a progressive decrease in mental wellbeing from early to late adolescence has been observed across different cohorts (4), and these declines in wellbeing and the increase in internalizing problems over time were particularly stronger in older adolescent girls (5). Self-rating of health in adolescents was consistently found to worsen with age, and girls showed a sharper decline than boys (4, 7). However, there is limited evidence, especially stemming from Central and Eastern European countries whether the gender and age gap in trends in adolescent mental health has increased over time. Consistent with the aforementioned findings, in our study we would expect a stronger decline over time in mental wellbeing for older adolescent girls.

Socioeconomic inequalities have a large impact on adolescent mental wellbeing (14). Compared to their peers from more affluent families, adolescents from socially disadvantaged groups have higher rates of poor subjective health, lower life satisfaction and higher load of multiple health symptoms (14), and lower quality of life and wellbeing (15). Moreover, previous literature indicates that there has been an increase over time in the social inequalities in adolescent mental health (15). Therefore, exploring socioeconomic inequalities in adolescent mental wellbeing in a country like the Czech Republic, that has experienced significant economic growth in the last decades, could bring more clarity into this topic.

Adolescent Mental Health in the Czech Republic

Recent international report places Czech adolescents around the European average for their rating of satisfaction with life and the experience of multiple health complaints (16). According to a recent UNICEF estimate, based on a Global Burden of Disease study, about 11% of Czech adolescents (age range 10–18) had a mental health disorder (10% girls and 11.7% boys) in 2019 which was below the European average (16.3%) (17). On the other hand, despite some positive recent trends, Czech youths have been constantly reporting more frequent risky behaviours when compared to their European peers (18). Also, there has been a steadily increasing number of children and adolescents who received psychiatric care. For instance, in the last ten years the number of child and adolescent psychiatric patients has risen for one third, from 67 to 87 thousands (19). Despite a good progress in implementation of the Czech mental health care reform, it is only a recent development that the Czech Government seeks to address child and adolescent mental health through the new Mental Health Action Plan 2030 as well as through the Strategy for the Czech Education Policy 2030+ (20). As such, it is important to provide an overview of the situation at the baseline before these policies are implemented.

Aims and Research Questions of the Current Study

In sum, while many studies have reported recent declines in adolescent mental wellbeing, the literature stems mostly from Western European and North American countries, and it is limited in terms of the comparability of time periods examined, methods used, countries studied, and outcomes measured. The present study addresses these challenges by using national representative data from Czech adolescents from 2002 to 2018. In this investigation, we aim to address the following research questions:

- How have the mental wellbeing indicators (life satisfaction, psychological and somatic symptoms) changed in the Czech Republic between 2002 and 2018?
- Has the gender, age and socioeconomic gap in trends in adolescent mental wellbeing increased in the Czech Republic between 2002 and 2018?

MATERIALS AND METHODS

Study Design

Data were drawn from the Czech Health Behaviour in School-aged Children (HBSC) study. The HBSC is a World Health Organization collaborative cross-national study conducted every four years to monitor the health and wellbeing of adolescents using a standardized research protocol (21). For each survey round, the participating countries collect data from a nationally representa-

tive sample of 11-, 13- and 15-year-olds using a standardized research protocol. Stratified random cluster sampling is employed with classes within schools as the primary sampling units. Adolescents completed anonymous questionnaires in classroom setting. Questionnaires were translated from English into Czech with back-translation checks, following a validated protocol (21).

Participants and Data Collection

This study used data from five Czech HBSC survey cycles (2002, 2006, 2010, 2014, and 2018). Nationally representative samples of 11-, 13- and 15-year-olds were included in each survey cycle: 2002 (N = 4,855; 52% girls), 2006 (N = 4,597; 49.5% girls), 2010 (N = 4,152; 51.5% girls), 2014 (N = 4,834; 52.4% girls), and 2018 (N = 10,938; 51% girls), respectively, resulting in a total sample of 29,376 adolescents (Table 1).

Over the study period, the response rate at the level of pupils ranged between 86% (2018) and 89% (2014). Data were collected by trained research assistants. All the surveys prior to 2018 employed a paper and pencil data collection, while in 2018 the data was collected using an online survey. No substantial differences in the results of the HBSC survey across paper-based and electronic administration have been reported. The participants were assured of the anonymity and confidentiality of their responses. The Institutional Research Ethics Committee of the Faculty of Physical Culture, Palacký University Olomouc, approved the design of the study, the course of preparation and execution of the research, an opt-out method for collecting parental consent, and the processing of the data on 4th March 2016, with the reference no. 9/2016. Similar ethical approvals have been granted for the previous surveys as well. The standard procedure across all survey classes was that all the participants, teachers, and school management members received detailed information on the survey design and data collection plan. Detailed information about the survey and its design and content was sent in advance to the parents via the school management. Thereafter, a passive parental consent was employed which implied that the adolescent was permitted to participate in the study unless the parent/guardian indicated that the adolescent should not participate. Adolescents were assured that the data provided was confidential and anonymous. In each cycle of data collection, the participation of adolescents was voluntary and without any financial incentives.

Instruments

Psychological and somatic symptoms. The HBSC Symptom Checklist, a non-clinical measure used to asses two different types of health symptoms: psychological (feeling low, irritability, feeling nervous and sleeping difficulties) and somatic (headache, stomach ache, backache and dizziness) symptoms (7). Participants had to indicate how often they experienced these symptoms over the last six months. Response categories were: "about every day", "more than once a week", "about every week", "about every month" and "rarely or never". This instrument has adequate test-retest reliability and validity properties (22). In our sample, both these subscales had acceptable reliability (psychological symptoms $\alpha = 0.74$; somatic symptoms $\alpha = 0.63$). Items were reverse coded. For each subscale, a mean score (0–4) was created which was used in the subsequent analyses, with a higher score indicating more frequent incidence of the symptoms.

Life satisfaction was assessed with the Cantril ladder (23). Participants rated how happy do they feel about their life on a visual analogous scale ranging from the worst possible life (0) to the best possible life (10). For this study, the scale was used as a continuous variable.

Gender and age. Respondents were asked to indicate whether they are a boy or a girl, as well as to report their date of birth (month/year).

Socioeconomic status was measured by the Family Affluence Scale (FAS), a 4-item composite measure developed by the HBSC network (24). FAS measures material family wealth as an indicator of socioeconomic position. It asks about real possessions (number of family cars, computers), characteristics of the home (having a bedroom for one's own), and the number of family holidays in the last year. The scores are summed up (0 = lowest affluence, 9 = highest affluence), and this score was used in the subsequent analyses.

Statistical Analysis

To examine to what extent the mental wellbeing indicators have changed over time (2002 to 2018), the means were calculated per survey year for the total sample, and each gender separately. To test trends in adolescent mental wellbeing, multiple regression analyses were conducted, using the year 2002 as the reference year and the other survey years were added as dummies (Null

Table 1. *Sample characteristics (N = 29,376)*

	2002	2006	2010	2014	2018	Total
Participants per survey	4,855	4,597	4,152	4,834	10,938	29,376
Gender						
Boys (%)	48.1	50.5	48.5	47.6	50.1	49.2
Girls (%)	51.9	49.5	51.5	52.4	49.8	50.8
Mean age (SD)[a]	13.43 (1.65)	13.51 (1.64)	13.49 (1.66)	13.44 (1.65)	13.36 (1.65)	13.43 (1.65)
Mean family affluence (SD)[b]	4.09 (1.69)	4.66 (1.85)	5.51 (1.87)	5.55 (1.85)	5.96 (1.89)	5.32 (1.97)
Mental health and wellbeing						
Mean life satisfaction (SD)[c]	7.45 (1.88)	7.28 (1.88)	7.51 (1.83)	7.20 (2.01)	7.79 (1.74)	7.52 (1.86)
Mean psychological symptoms (SD)[d]	1.30 (0.87)	1.40 (0.97)	1.44 (1.01)	1.36 (1.01)	1.42 (0.98)	1.39 (0.96)
Mean somatic symptoms (SD)[d]	0.73 (0.71)	0.83 (0.74)	0.92 (0.74)	0.70 (0.74)	0.69 (0.72)	0.76 (0.74)

FAS – Family Affluence Scale; [a]range age 10.5–16.43; [b]range FAS scale 0–9; [c]range scale 0–10; [d]range 0–4

models). Next, we ran the same models while controlling for gender, age and family affluence (Model 1). To investigate the extent to which trends in wellbeing have been different for girls and boys, we added the survey year × gender interaction term in the model (Model 2). Subsequently, we explored if the age and the socioeconomic differences have changed over time, by introducing survey year × age interaction term (Model 3), and survey year × family affluence interaction term (Model 4), respectively. A final model (Model 5) testing whether the trends have been stronger for older adolescent girls (survey year × gender × age) was run. In order to test for linear effects of time, separate linear regressions with time as continuous variable were conducted. All analyses were performed using statistic software package SPSS 24 (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp). Associations and interaction effects were considered significant if $p < 0.05$.

RESULTS

The socio-demographic characteristics of the sample are illustrated in Table 1. The average age of the total sample was 13.43 (SD = 1.65) (mean age range from 13.36 in 2018 to 13.51 in 2006), and 51% were girls (range from 49.5 in 2006 to 52.4 in 2014). Across all survey years, apart from life satisfaction in 2002, girls reported significantly higher levels of psychological and somatic symptoms and lower levels of life satisfaction (Table 2). Overall, mean scores for somatic symptoms were lower than for psychological symptoms.

Trends in Czech Adolescent Mental Wellbeing

Changes over time were recorded for all three wellbeing indicators, but these showed different trajectories. Compared to 2002, life satisfaction was significantly lower in 2006 ($B = -0.235$; $p < 0.001$), 2010 ($B = -0.131$; $p < 0.001$), and 2014 ($B = -0.440$; $p < 0.001$), but it increased in 2018 to levels similar to those in 2002 ($B = 0.050$; ns). Psychological symptoms, compared to 2002, were significantly higher in all subsequent survey years with the largest difference being observed in 2006 ($B = 0.149$; $p < 0.001$), and 2018 ($B = 0.147$; $p < 0.001$). In contrast, somatic complaints were significantly higher in the interval 2002 to 2010 ($B = 0.187$; $p < 0.001$), were lower in 2014 ($B = -0.027$; ns), and further in 2018 ($B = -0.044$; $p < 0.001$). Compared to 2002, only the decline in somatic complaints observed in 2014 did not significantly differ (Table 3, Model 1). Linear trend analyses (2002 to 2018) revealed that there was a linear increase in adolescent life satisfaction ($B = 0.134$; $p < 0.001$) and psychological complaints ($B = 0.017$; $p < 0.001$) but no significant linear change in somatic complaints ($B = -0.005$; $p = 0.128$).

Gender, Age, and Socioeconomic Differences in Trends in Adolescent Mental Wellbeing

Compared to boys, girls reported lower life satisfaction ($B = -0.177$; $p < 0.001$), and more psychological ($B = 0.329$; $p < 0.001$) and somatic symptoms ($B = 0.237$; $p < 0.001$) during the study period. The gender gap changes over time were not consistent across the mental wellbeing indicators. To illustrate, compared to 2002, the gap between boys and girls in reporting life satisfaction was significantly larger in all survey years, except of 2014. On the other hand, the differences between boys and girls in reporting psychological symptoms compared to 2002 were significantly larger over time in all years, except in 2010. Furthermore, these gender differences in reporting somatic symptoms increased only in 2006 ($B = 0.101$; $p < 0.001$) and 2014 ($B = 0.093$; $p < 0.001$). Three-way interaction analyses were run (survey year × gender × age – results not illustrated in Table 2), which confirmed that the increase in psychological complaints have been stronger for older adolescent girls in 2006 ($B = 0.066$; $p < 0.001$), in 2014 ($B = 0.040$; $p < 0.05$) and in 2018 ($B = 0.066$; $p < 0.001$) (Fig. 1).

Overall, with increasing age, adolescents in the Czech Republic reported lower levels of life satisfaction ($B = -0.159$; $p < 0.001$) and higher levels of psychological ($B = 0.06$; $p < 0.001$) and somatic symptoms ($B = 0.048$; $p < 0.001$). Nonetheless, the differences between younger and older adolescents have increased over time only for psychological symptoms (Table 3, Model 3). For life satisfaction and somatic symptoms, the age gap remained stable in the investigated time frame excepting 2006, when the age differences increased for life satisfaction ($B = 0.075$; $p < 0.001$).

Higher family affluence was associated with higher levels of life satisfaction ($B = 0.138$; $p < 0.001$) and less frequent psychological symptoms ($B = -0.011$; $p < 0.001$). No associations between family affluence and somatic symptoms were found. These socioeconomic differences remained stable over time, except for

Table 2. *Marginal estimated means for life satisfaction and health symptoms by gender (N = 29,376)*

	2002	2006	2010	2014	2018
	Mean (95% CI)[a]	Mean (95% CI)[a]	Mean (95% CI)[a]	Mean (95% CI)[a]	Mean (95% CI)[a]
Boys					
Mean life satisfaction[b]	7.67 (7.60–7.75)	7.55 (7.48–7.63)	7.60 (7.53–7.68)	7.27 (7.20–7.34)	7.78 (7.73–7.82)
Mean psychological symptoms[c]	1.16 (1.12–1.20)	1.22 (1.18–1.26)	1.28 (1.24–1.32)	1.19 (1.15–1.23)	1.27 (1.24–1.29)
Mean somatic symptoms[c]	0.63 (0.60–0.66)	0.66 (0.60 –0.72)	0.80 (0.77–0.83)	0.56 (0.54–0.59)	0.58 (0.57–0.60)
Girls					
Mean life satisfaction[b]	7.58 (7.50–7.65)	7.23 (7.16–7.31)	7.39 (7.32–7.47)	7.10 (7.03–7.18)	7.59 (7.54–7.63)
Mean psychological symptoms[c]	1.43 (1.39–1.47)	1.57 (1.53–1.61)	1.60 (1.56–1.64)	1.53 (1.49–1.57)	1.61 (1.58–1.63)
Mean somatic symptoms[c]	0.83 (0.80–0.86)	0.98 (0.95–1.01)	1.03 (1.00–1.06)	0.84 (0.81– .87)	0.79 (0.76–0.81)

[a]Adjusted by age and family affluence; [b]range scale 0–10; [c]range 0–4

Table 3. *Time trends in life satisfaction, psychological and somatic symptoms: interaction effects with gender, age and family affluence (N = 29,376)*

Main effects		Life satisfaction			Psychological symptoms			Somatic symptoms		
		B	SE	p-value	B	SE	p-value	B	SE	p-value
Null models	2006 (ref. 2002)	−0.168	0.4	< 0.001	0.093	0.02	< 0.001	0.103	0.02	< 0.001
	2010 (ref. 2002)	0.057	0.04	< 0.001	0.134	0.02	< 0.001	0.191	0.02	< 0.001
	2014 (ref. 2002)	−0.246	0.04	0.002	0.061	0.02	< 0.001	−0.023	0.01	0.120
	2018 (ref. 2002)	−0.331	0.03	< 0.001	0.117	0.02	< 0.001	−0.047	0.01	< 0.001
Model 1	2006 (ref. 2002)	−0.235	0.03	< 0.001	0.103	0.02	< 0.001	0.106	0.06	< 0.001
	2010 (ref. 2002)	−0.131	0.03	< 0.001	0.149	0.02	< 0.001	0.187	0.01	< 0.001
	2014 (ref. 2002)	−0.440	0.03	< 0.001	0.072	0.01	< 0.001	−0.027	0.01	0.075
	2018 (ref. 2002)	0.050	0.03	0.093	0.147	0.01	< 0.001	−0.044	0.01	< 0.001
	Gender (ref. boys)	−0.177	0.02	< 0.001	0.329	0.01	< 0.001	0.237	0.01	< 0.001
	Age (continuous)	−0.159	0.01	< 0.001	0.060	0.01	< 0.001	0.048	0.01	< 0.001
	FAS (continuous)	0.138	0.01	< 0.001	−0.011	0.01	< 0.001	0.001	0.01	0.541
Interaction effects										
Model 2	2006 × gender	−0.248	0.07	0.001	0.084	0.03	0.030	0.101	0.03	< 0.001
	2010 × gender	−0.156	0.07	0.039	0.070	0.03	0.076	0.046	0.03	0.125
	2014 × gender	−0.110	0.07	0.131	0.081	0.03	0.034	0.093	0.03	< 0.001
	2018 × gender	−0.131	0.06	0.030	0.085	0.03	0.007	0.015	0.02	0.524
Model 3	2006 × age	0.075	0.02	< 0.001	0.014	0.01	0.234	−0.16	0.01	0.079
	2010 × age	0.036	0.02	0.117	0.035	0.01	0.003	0.017	0.01	0.057
	2014 × age	0.027	0.02	0.227	0.026	0.01	0.025	0.006	0.01	0.487
	2018 × age	−0.034	0.02	0.059	0.034	0.01	< 0.001	−0.005	0.01	0.518
Model 4	2006 × FAS	−0.030	0.02	0.150	0.001	0.01	0.927	0.011	0.01	0.185
	2010 × FAS	−0.005	0.02	0.822	0.009	0.01	0.421	0.007	0.01	0.379
	2014 × FAS	−0.025	0.02	0.221	0.013	0.01	0.218	0.014	0.01	0.087
	2018 × FAS	−0.060	0.02	< 0.001	0.004	0.01	0.664	0.007	0.01	0.337

FAS – Family Affluence Scale; Models 2, 3 and 4 are controlled for main effects of survey year, gender, age, and family affluence, respectively.

life satisfaction, where family affluence differences decreased in 2018 compared to 2002 (B = −0.060; p < 0.001).

DISCUSSION

The current study examined trends in three indicators of adolescent mental wellbeing using nationally representative cross-sectional data from the Czech Republic (2002, 2006, 2010, 2014, and 2018). Importantly, the study also investigated whether the trends in adolescent mental wellbeing were moderated by gender, age and family affluence. Our first main finding indicates that in the Czech Republic, the adolescent mental wellbeing has changed between 2002 and 2018 across all three mental wellbeing indicators, but each indicator had a different pattern of change over time. During this period, a consistent increase in the prevalence of psychological symptoms emerged from 2002 onwards, whereas for life satisfaction a decline was observed up to 2014. From 2014 to 2018, an increase in life satisfaction was observed. For somatic complaints, an increase was observed up to 2010, followed by a subsequent improvement over time. These findings despite small in size are at odds with other studies that reported rather a stable state of emotional and behavioural symptoms between 2003 and 2013 in the Netherlands (9) or Norway (25).

Nonetheless, the fact that we observed no further deterioration in life satisfaction and somatic complaints is in line with other recent studies that support either a stabilization or further decline of self-reported mental wellbeing (10). In an international comparison, adolescents from the Czech Republic and the United States were the only ones whose self-rated health worsened between 2002 and 2006, and then showed an increase from 2006 to 2010 (26). Our findings are comparable to this pattern and indirectly suggest the presence of potential buffering factors. One would intuitively attribute the pattern to changes in social context among adolescents, such as increase in family support, improvement in communication with parents or higher school satisfaction (27). However, the last HBSC international report (16) shows it is apparently not the case. The rating of these factors rather worsened over the monitored period, and Czech adolescents ranked way below the average of their peers from other countries on these indicators. Future studies thus should explore this in more depth.

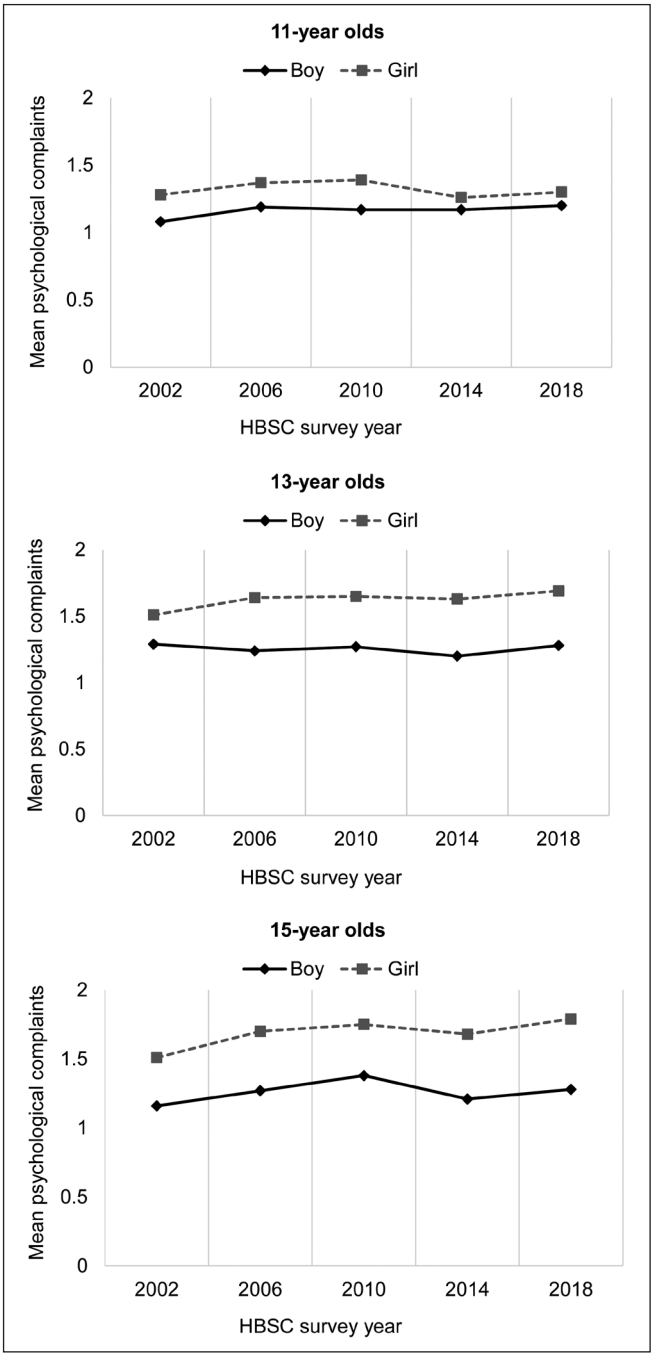

Fig. 1. *Trends over time in psychological complaints by gender and age.*

The diverging trends in psychological complaints, somatic complaints and life satisfaction reinforce the idea that adolescent mental wellbeing is not a unidimensional construct and that its different components of mental wellbeing can show different trajectories and may have differential susceptibilities. Life satisfaction, which refers to global cognitive evaluations about one's life, can be considered a global construct of subjective wellbeing, and may therefore be influenced by broader life experiences and relationships (23). In contrast, psychosomatic complaints may represent symptoms of more immediate stress which, at the more severe end, may impair everyday functioning and could be associated with problems from the internalizing spectrum. Furthermore, emotional components of wellbeing (i.e. psychological complaints) tend to be more prone to fluctuations compared to life satisfaction, which is usually described as a more stable component (28). Nonetheless, these findings emphasize the need to view mental wellbeing as a multidimensional construct and suggest a need for greater understanding of the associations between risk factors and different aspects of mental wellbeing. To address this, the Governmental Council for Mental Health has been established and one of its aims is to monitor and promote the mental well-being of young people (20).

Adolescent girls reported lower mental wellbeing compared to boys, but this gender gap has not systematically increased over time. This result confirms that girls are more likely to report poorer mental wellbeing outcomes (5), and also supports a consistent body of research (5) which found increasing trends in girls only for emotional problems (10) or psychological and somatic symptoms (7). This increase in gender gap over time could be explained, among others, by the exposure to gender role expectations and the socially defined roles for women and men in society together with exposure to gender-specific stressors. As demonstrated by a recent large-scale cross-national study, the Czech Republic is among the countries where the gender gap in exposure to psychological distress is pronounced and unfavourable for girls (29). Furthermore, there is considerable evidence that girls are expected to be more emotionally sensitive (30), experience more restricted gender roles and body dissatisfaction (31), are more likely to experience and communicate health symptoms (32), or experience more school performance pressure (4), which may all contribute to the gender disparities in mental wellbeing we observed in adolescents from the Czech Republic.

Similarly to the consistent gender gap, our results indicate that older adolescents were more likely to report low mental wellbeing and this age gap has increased over time but not across all outcomes. The interaction analyses revealed, though, that these age differences remained stable across the survey years except psychological symptoms where the age gap increased in 2010 and 2018 as compared to 2002. Nonetheless, including a three-way interaction parameter in the regression model revealed that the increase in psychological complaints had been the strongest among older adolescent girls. This is in line with the results reported by Collishaw (5) and, as such, is not something that would be a Czech-specific phenomenon.

Furthermore, previous research argued that interaction of mental health outcomes and socio-demographic characteristics as gender, age and socioeconomic status showed a large cross-national variability (33), which may explain why the changes in associations over time were less emphasized in the Czech Republic. These results do not follow previous findings which indicated that the decline in mental wellbeing is slightly stronger for older adolescents compared to younger ones (5, 7). In Norway, an increasing trend in health complaints among adolescents from 1994 to 2014 was found, especially among older adolescent girls (7). In Sweden, the increase over time in psychological complaints (1985 to 2005) was seen in older adolescents (boys and girls), whereas no significant change was seen in the youngest groups (11-year olds) (34). Given these mixed results, there is a need for a more comprehensive study which includes more countries over a relatively longer time frame and employs a uniform set of mental health and wellbeing outcomes for boys, girls, adolescents of different age groups, and socioeconomic backgrounds.

Interestingly, the gap in mental wellbeing of Czech adolescents coming from different family affluence remained relatively stable in the investigated time frame. This is in line with previous studies that showed that the inequalities in adolescent health complaints in the Czech Republic has been stable from 1994 to 2010 (35), and confirms that this trend has remained stable. This could be partly explained by the demographic characteristics of the Czech population. According to the Gini index (36), the Czech Republic is one of the countries with the lowest income inequality worldwide. In addition, its population is also very homogeneous as regards nationalities of its inhabitants, because only 5% of them are of non-Czech origin and this has been quite consistent over time (37).

A key strength of the present study is investigating nationally representative samples of adolescents using identical study protocols across a 16-year period. Nonetheless, this inherently fosters the limitation that data collected across time is cross-sectional and self-reported and no causality can be inferred. The measures used were restricted to those available in the HBSC study since 2002, therefore, providing a relatively limited perspective on adolescent mental health. Further research should include a broader range of mental health outcome measures and other potential drivers of mental health trends, such as changes in the school or family environment, or social media use, which are required to better understand this complex issue. Nonetheless, the present study provides essential and up-to-date information about changing mental health trends in early adolescence from the Central European region.

CONCLUSIONS

These results suggest that the increase in psychological health complaints should be considered a public health concern in the Czech Republic. It is encouraging that no further decline in life satisfaction was observed but rather an improvement. To better understand potential determinants of adolescent mental wellbeing, longitudinal studies and continued tracking of health trends are needed. Besides, school interventions that assist Czech adolescents in managing psychological and somatic health complaints are vital. Furthermore, our results also support a continuous focus on primary prevention and adolescent wellbeing promotion in the Czech Republic whilst considering the age and gender differences, as well as initiatives aimed at increasing mental health literacy among young people.

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Conflict of Interests

None declared

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