RAISONS DE SANTE 323 – LAUSANNE

Unisanté – Centre universitaire de médecine générale et santé publique
Groupe de recherche sur la santé des adolescents - GRSA

A picture of the mental health of adolescents in Switzerland and Liechtenstein

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Raisons de santé 323

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Étude financée par :
UNICEF Suisse et Liechtenstein

Citation suggérée :
Barrense-Dias Y, Chok L, Surís JC. A picture of the mental health of adolescents in Switzerland and Liechtenstein. Lausanne, Unisanté – Centre universitaire de médecine générale et santé publique, 2021 (Raisons de santé 323). https://doi.org/10.16908/issn.1660-7104/323

Date d'édition :
Novembre 2021

ISSN 1660-7104

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1 Summary

1.1 Introduction

Current research suggests that mental health in young people is declining. Recent data indicate that depressive disorders are the main cause of morbidity among 15-19 year-olds, followed by anxiety disorders. In Switzerland, prevalence rates for depression range between 9.7% and 23.9% for females and from 3.6% to 12.9% for males, while for anxiety, it oscillates between 13.6% and 17.3% for females and 9.1% and 12.5& for males, depending on the type of sample, the age group, and the screening instrument used.

The objectives of this research are: (1) To assess the prevalence of mental health disorders (depression and/or anxiety) among adolescents (14-19 year-olds) in Switzerland and Liechtenstein; (2) To identify individual, family, social and environmental factors associated to these disorders.

1.2 Methods

Since this questionnaire was held mostly during the summer school holidays, we chose a method of dissemination via social networks. The questionnaire, in the three main languages of the Confederation, was distributed through websites and social networks between June 7th and August 9th 2021. The questionnaire included 49 questions involving 124 items divided into 6 sections: personal, family, academic/professional, somatic health, emotional health and COVID-related data.

Overall, 2038 participants entered the questionnaire during the 2 months of data collection. Among them, 808 (39.6%) were incomplete (they did not reach the end of the questionnaire) and not included in the analysis. Additionally, 11 (0.5%) indicated that they had not been honest with their answers and 22 (1.1%) were not in the age range (they indicated being older than 19 years) and were all removed. The analytic sample included 1197 individuals, 58.7% of all respondents. Because the sample was not constructed according to probabilistic principles, the distribution of the raw data collected was not sufficiently representative of the populations of young people aged 14 to 19 residing in Switzerland and Liechtenstein. As a result, weights were calculated to adjust the sample, and all subsequent statistical calculations were made taking these weights into account.

In this descriptive analysis, we used Chi2 test to compare categorical variables and student's t test or ANOVA for continuous ones. We set the significance level at 0.05.

1.3 Results

Overall, participants had a mean age of 16.52 years, with almost the same percentage of males and females. In 33 cases (2.8%) participants defined their gender as other. One participant out of every eight (12.4%) was foreign-born. The majority had their parents living together (72.3%) and had siblings (91%), mostly one (56%). Eleven percent of them reported that their family's socioeconomic status was below average compared to other families in their country.

Almost half of the sample (45%) reported low emotional wellbeing and one-third a low self-esteem. One third were depressed, one fourth declared moderate to severe anxiety, and 37% were depressed and/or anxious. Seven out of every ten had suffered from at least one adverse childhood experience, with school bullying or harassment being the most frequent. Among those reporting some kind of discrimination, sexual orientation was the most frequently cited, with almost half of the cases.

Participants screened as depressed were slightly, but significantly, older and more likely to be females or other gender. They also reported a poorer family and academic/professional situation. Depression was associated to reporting poorer physical health, more adverse childhood experiences and substance use. The majority of them (52.4%) had not consulted a mental health specialist in the previous year. In over one third of the cases (36.7%), they turned to nobody when they did not feel well emotionally, followed by their friends (34.7%).

Participants screened as anxious were more likely to be females and other gender and reported more family and academic/professional problems. Anxiety was associated both with poorer physical health and with other indicators of poor mental health. Almost all of them (93.9%) had lived at least one adverse childhood experience. However, only half of them had consulted a mental health provider in the previous 12 months. One-third (33.6%) turned to nobody when they did not feel well emotionally and 36% to their friends.

Globally, while 45.7% had ever had suicide ideations, 8.7% had ever attempted suicide. Forty percent of suicide attempters had tried it more than twice. Regarding whom they turned to when emotionally disturbed, nobody (29.1%) and friends (29%) were the most frequently cited.

The main feeling regarding the pandemic was being tired (27.7%) followed by being calm (22.7%) and indifferent (18.3%). Since the beginning of the pandemic, one-quarter stated that their physical health was worse, 47.1% that their mental health was worse and 27.9% that their future looked worse. One quarter of participants knew someone who had died of COVID, mainly acquaintances.

1.4 Conclusions

Mental health problems affect around one third of 14-19 year-olds in Switzerland and Liechtenstein. Although the current pandemic has most probably played a role in it, this prevalence rate is much higher (or at least in the upper range) compared to other studies performed in similar populations, both in Switzerland and elsewhere.

It is however quite disturbing that, in spite of the high reported prevalence, those consulting a mental health provider continue to be a minority, with less than half of those screened as depressed and/or anxious having consulted a mental health professional in the year previous to the survey. Moreover, turning to nobody when emotionally unstable shows a high prevalence among them. Although the stigmatization often associated with mental health care can explain part of these results, it cannot be excluded that these are young people who do not receive treatment because they are not detected.

There are subgroups of young people that seem to be at increased risk of mental health problems. These include, among others, those with difficult family situations, those with lower socioeconomic status, those having suffered from childhood adverse experiences, and those suffering from chronic conditions. Even though all adolescents should be routinely screened for mental disorders, these subgroups should be specifically targeted.

Comorbidity is high among young people with mental health issues. They are more likely to report a low emotional well-being, and lower self-esteem. Similarly, they also state a poorer physical health. All these situations should be considered as red flags to further screen them.

Mental health is associated with risk behaviors, especially with substance use. Whether it is the cause or the consequence cannot be established with the cross-sectional design used in this research. Nevertheless, when substance use or mental disorders are found through anamnesis or screening, the other one should also be sought.

1.5 Recommendations

1.5.1 Early detection

Cases of adult mental health disorders often start in adolescence and go undetected. Screening needs to be done to all young people through primary care providers to permit early detection and treatment. School staff has also an important detection role to play.

Males are underrepresented in mental health in the sense that they tend to report lower prevalence rates than females. As it could be that males tend to underreport this kind of situations, efforts to make sure that they are emotionally sound should be systematic.

Mental health prevention programs must be put in place at an early age. Such programs should be multilevel and, apart from health professionals, include the adults surrounding young people such as their parents, teachers, sport coaches, etc.

1.5.2 Mental health services

Mental health services adapted to young people's needs must be created with sufficient capacity to absorb the demand and avoid delays in management and treatment. Such services need to include transition programs to adult care in order to avoid discontinuity of care. Moreover, such services should be able to adapt with minimal delay to particular circumstances, such as the one due to the COVID-19 pandemic, as it is when they are exceptionally needed.

1.5.3 A broader approach

Mental health services need to be destigmatized and be seen as any other medical specialty that can improve the health of the population. A specific effort in this sense through health education needs to be done.

Speaking spaces must be set up and easily accessible for the most vulnerable, but also for all young people, even if at first glance they seem to have all the necessary resources. Every young person should feel legitimate to ask for help regardless of the severity of his or her condition and situation. As the Internet is an important place to seek help for adolescents because of its easy access and usually no cost, such platforms need to be developed and adolescent health literacy improved in this sense. In addition, there is a need to promote the already existing tools with massive communication and dissemination.

A lot of mental health awareness work is needed. This awareness must target young people but also the entire population. As the COVID-19 pandemic has highlighted the mental health needs of the youth population, it seems appropriate to take advantage of this situation. Primary prevention therefore appears necessary in order to define what mental health is, how to express one's emotions and feelings, and to destigmatize mental health issues. Schools seem to be an adequate ground for integrating this theme and making it less taboo.

1.5.4 Regular monitoring

The results of this study are most probably influenced by the current pandemic. New surveys should be done at regular intervals to assess the mental health of young people under a more normal situation and to assess its evolution over time, especially during the post-pandemic era.

Although we know the percentage and, to a certain extent, the frequency of health services' use, it would be important to study how these services (specially mental health ones) are used and how young people think they could be improved.

2 Introduction

Current research suggests that mental health in young people is declining[1-3], and Switzerland is not an exception[4]. Recent data indicate that depressive disorders are the main cause of morbidity among 15-19 year-olds, followed by anxiety disorders. Moreover, for 10-14 year-olds, anxiety disorders rank second for females and third for males, while, only among males, childhood behavioral disorders are the main cause of morbidity among 10-14 year-olds and the second one among those aged 15-19[5]. A systematic review and meta-analysis of the literature among 10-19 year-olds using the General Health Questionnaire (GHQ-12) found a prevalence of common mental disorders ranging from 25% to 31% depending on the cut-off point used[6]. Still, data from low and middle income countries[7] among 5-17 year-olds found an overall prevalence for mental disorders of 4.5%, which represents about one fifth of that found in high income countries (26.4%). In their review, Merikangas et al. [8] reported that about one third of youths suffered from a mental health disorder in their lifetime and one fourth in the previous year. Mental health problems in childhood and adolescence have implications for mental health disorders in adulthood. Knowing the prevalence of mental health problems in young people is important in order to put in place early interventions[9]. Furthermore, the COVID-19 pandemic seems to have a negative effect on the mental health of adolescents[10].

2.1 Prevalence rates

Prevalence rates vary largely depending on factors such as the screening instrument and the cut-off used, the type and size of the sample, the studied age group, the time frame or the disorders included. (Table 1)

Data from the National Health Service (NHS) in England for 2017 showed that, for 11-16 year-olds, 9% reported emotional disorders, 5% behavioral disorders, 2% hyperactivity disorders, and 2% less common ones. Overall, 14.4% reported any disorder and 6.2% two or more[3]. Another study carried out in England[9] among twenty-eight thousand students aged 11-14 found that, using the child version of the Strengths and Difficulties Questionnaire (SDQ), 18% scored above the threshold for emotional symptoms, 18% for conduct problems, 25% for inattention/hyperactivity and 7% for peer-relationship problems. Overall, over two out of five scored above the threshold for any of the first three scales. Using the same questionnaire among 11-17 year-olds, a German study found a prevalence of mental health symptoms of 6.6%, more important among males (7.8%) than among females (5.3%)[11]. Another German study among 14-21 year-olds, found an overall lifetime rate of anxiety disorders of 23.3% and 16.5% when limited to the last 12 months, with females outnumbering males[12].

A Dutch longitudinal study [13] established that the prevalence of lifetime mental health disorders among 18-20 year-olds was 45% while the current prevalence (last 30 days) was 15%. They concluded that, at the end of adolescence, 22% had ever experienced a severe mental health episode and 23% a mild one.

Figures from the United States obtained through asking parents and educators found that among those aged 12-17 years, 6.1% were diagnosed with depression, 10.5% with anxiety, and 7.5% with behavioral/conduct problems[14]. Another US study carried out in community health clinics among 12-18 year-olds found that 14% of them screened positive for a mental health problem[15]. US trend data over a decade[2] showed an increase of major depressive episodes from 8.7% in 2005 to 11.3% in 2014. The increase was more marked for females than for males.

Data from Israeli 14-17 year-olds using the Development and Well-Being Assessment Inventory found that 8% had internalizing and 5% externalizing disorders, for an overall 12% presenting any of these disorders[16]. In Santiago de Chile[17], 18% of 13-19 year-olds reported a major depressive episode. An international study among over thirteen thousand college students using the CIDI-SC and the AUDIT concluded that 35% reported at least one mental health disorder in their lifetime and 31% in the previous 12 months. Median age at onset was slightly over 14 years[18].

Longitudinal Canadian data[1] over a period of 20 years revealed that among males aged 11-15, 4.3% reported anxiety/depression in 1997 and 5.5% in 2017. For females, it increased from 5.8% to 9.2%. Among those aged 16-20, rates increased from 6.6% to 10.5% for males and from 13.8% to 18.3% among females during the same period.

Data from middle and low income countries are scarce[7], but a study carried out in Bangladesh indicated that one quarter of 15-17 year-olds and 30% of those aged 18-19 suffered from some form of depression (from minimal to severe according to the PHQ-9 questionnaire) and that rates were higher for females than for males[19]. In a relatively small sample (n=312) from Nepal [20], the authors found that over two fifths of participants (14-20 year-olds) were depressed, with females outnumbering males. A study carried out in India[21] found a prevalence of depression of 14.2%, slightly higher for males than for females. Finally, a large study from Iran[22] showed a prevalence of anxiety disorders of 12% among 10-18 year-olds.

Table 1 International prevalence rates

Country (Ref)	Instrument	Sample size	Age-group	Mental disorder	Prevalence rate
Bangladesh [19]	PHQ-9	9'856	15-17 18-19	Depression	Females: 27.4% Males: 23.1% Females: 34.8% Males: 25.4%
Canada (Ontario) [11]	ICD diagnostic codes	Not specified by age group	11-15 16-20	Anxiety/Depression	Females: 9.2% Males: 5.5% Females: 18.3% Males: 10.5%
Nepal [20]	CES-D	312	14-20	Depression	Females: 52.1% Males: 40.8%
India [21]	CES-D	1057	12-18	Depression	Females: 13.7% Males: 14.5%
United States [2]	NCS-replication	176'245	12-17	Major depression episode	Females: 13.5% Males: 4.7%

Country (Ref)	Instrument	Sample size	Age-group	Mental disorder	Prevalence rate
United States [14]	Doctor's diagnosis	Not specified by age group	12-17	Depression Anxiety Conduct problem	6.1% 10.5% 7.5%
Israel [16]	Developmental and Well-being Assessment inventory	957	14-17	Any mental disorder	Females: 13.9% Males: 9.7%
Germany [11]	SDQ	1'395	11-17	Mental health problems	Females: 5.3% Males: 7.8%
Germany [12]	DIA-X/M-CIDI	1'180	14-21	Anxiety disorders (12 months)	Females: 23.7% Males: 9.8%
England [9]	SDQ	28'160	11-14	Emotional symptoms Conduct problems Attention/Hyperactivity	18.4% 18.5% 25.3%
Northern Ireland [23]	SDQ	1'673	13-18	Mental health problems	Females: 23.9% Males: 11.0%
United States [15]	Brief Symptoms Inventory	1'076	12-18	Mental health symptoms	Females: 16.4% Males: 11.2%
The Netherlands [13]	CIDI 3.0	1'584	18-20	Any mental disorder	Lifetime: 45% 12-month: 31% 30-day: 15%
Australia, Belgium, Germany, Mexico, Northern Ireland, South Africa, Spain, United States [18]	CIDI-SC & AUDIT	13'894	18-20+	Major depressive episode Generalized anxiety disorder Panic disorder Broad mania Alcohol use disorder Substance use disorder Any mental disorder	Lifetime: 21.2% 12-month: 18.5% Lifetime: 18.6% 12-month: 16.7% Lifetime: 5.0% 12-month: 4.5% Lifetime: 3.5% 12-month: 3.1% Lifetime: 6.8% 12-month: 6.3% Lifetime: 5.1% 12-month: 3.0% Lifetime: 35.3% 12-month: 31.4%
Chile [17]	PHQ-9	2022	13-19	Major depressive episode Subthreshold depressive episode	Females: 24.9% Males: 10.7% Females: 19.8% Males: 13.2%
Iran [22]	K-SADS-FL	10'028 8'877	10-14 15-18	Anxiety disorder	12.4% 12.0%

[1]Prevalence for 2017

2.1.1 Prevalence rates in Switzerland

Data from young adults in Switzerland (mean age 19.6 years) [24] established prevalence rates of 18% for depression, 13% for anxiety, and 9% for attention deficit and hyperactivity disorder (ADHD), with females reporting higher rates than males. Overall, 25% stated any of these disorders. Data from Swiss males with the same mean age collected during recruitment for military service showed a prevalence of depression of 3.6%[25]. Figures from the Swiss Health Survey showed that the percentage of youth aged 16-25 years suffering from mild to severe depressive symptoms increased from 10.4% in 2012 to 13.5% in 2017[4].

However, in a longitudinal study of post-mandatory students in the canton of Fribourg aged 15-24 at baseline26, the prevalence rates of poor emotional wellbeing measured using the World Health Organization-Five Well-being Index (WHO-5), were quite stable four years later both for females (from 26.7% to 24.8%) and males (from 14.4% to 14.8%). Another study among 13-14 year-olds in the canton de Vaud in 2019, also using the WHO-527, reported a prevalence of poor emotional wellbeing of 34.6% for females and 16.4% for males.

Additionally, a research conducted during the first COVID lockdown among 12-17 year-olds[28] found that one third of them reported a mental health problem and that it was more frequent among females (Table 2).

Finally, to the best of our knowledge, no data on the mental health of young people in Liechtenstein exist.

Table 2 Prevalence rates in Switzerland

Study (Ref)	Instrument	Sample size	Age-group	Mental disorder	Prevalence rate
GenerationFRee [26]	WHO-5	1706	15-24[a]	Emotional wellbeing	Females: 26.7% Males: 14.4%
			19-28[b]		Females: 24.8% Males: 14.8%
Internet 2020 [27]	WHO-5	3006	Mean: 13.7	Emotional wellbeing	Females: 34.6% Males: 16.4%
S-YESMH [24]	PHQ-9	3840	Mean 19.6	Depression	Females: 23.9% Males: 11.5%
	GAD-7			Anxiety	Females: 17.3% Males: 9.1%
	ASRS v1.1			ADHD	Females: 9.9% Males: 7.4%
				Depression, anxiety or ADHD	Females: 30.7% Males: 18.8%
S-YESMH[28]	PHQ-2	1146	12-17	Depression	Females: 9.7% Males: 4.6%
	SCAS-C			Anxiety	Females: 13.6% Males: 12.5%

Study (Ref)	Instrument	Sample size	Age-group	Mental disorder	Prevalence rate
	K-SADS			ADHD	Females: 22.7% Males: 23.3%
				Oppositional defiant disorder	Females: 18.2% Males: 11.2%
				Any mental health disorder	Females: 39.1% Males:31.5%
CH-X [25]	PHQ-9	9066	18-25	Depression	Males: 3.6%
Swiss Health Survey [4]	PHQ-9	Females: 1310-1482 Males: 1012-1358	16-25	Mild to severe depressive symptoms	Females: 14.3% Males: 12.9%

[a]2015-2016/[b]2018-2019

2.2 Risk factors

There are many risk factors associated with mental health disorders described in the literature. In this sense, mental health problems increase with age[1-3, 9, 18, 19] and, overall, are more frequent among females[13, 15-18, 22], although some found no gender difference[20] or even a higher prevalence among males[11, 21]. In England, among those aged 17-19 years, females were more than twice more likely to report a mental health disorder than males (23.9% vs. 10.3%, respectively)[3]. Almost the same results were found for 13-17 year-olds in Ireland (females: 23.9%, males: 11%)[23]. However, male gender was associated with behavioral problems[9, 16] and inattention/hyperactivity[9], while female gender was associated with emotional symptoms[9, 16]. Moreover, defining themselves as non-heterosexual[18] or being part of sexual gender minorities[29] increases the risk of mental disorder.

Mental health disorders are also more frequent in lower socioeconomic strata[30]. Situations like living in a single parent household[13, 14, 18, 31], reporting a lower socioeconomic position[1, 25, 31], being a deprived child[9], or having low social[20, 25], emotional and material support[25] have also been depicted. Similarly, lower parental monitoring is associated with mental health problems[15].

Mental health is also linked with schooling. In this line, low academic performance has been associated with mental health problems[15, 18, 25], as has suffering from a learning disability[16]. Lower parental education is likewise associated to poorer mental health[13, 25]. Overall, youths with mental health problems seem to be less satisfied academically and/or professionally[25].

Adolescents with mental health problems report a lower health-related quality of life[11] and poorer somatic health[14, 15]. It is worth noting that adolescents with disabilities[31] or chronic conditions[16, 32, 33] report more emotional difficulties and higher prevalence of self-harm[31]. The impact of their condition on their daily activities and socialization increases depressive symptoms[34].

Finally, youths living in a rural setting[1], being exposed to adverse childhood experiences[35, 36], substance use[30], or using social media daily[3] also report more mental health problems.

2.3 Suicidal ideation and attempt

English adolescents with mental disorders are much more likely to have self-harmed or attempted suicide than those without disorders (25.5% vs. 3%)[3]. Data from Northern Ireland among 13-18 year-old pupils[23], indicated that 19% of females and 7% of males had seriously thought about suicide and that 2.9% and 1.8%, respectively, had attempted suicide. In the US[15], over one third of those screened for mental health problems reported suicide ideation or attempt. A German survey[11] reported that 3.4% of 11-17 year-olds had had suicidal ideations and 2.9% a suicidal behavior. In both cases, females outnumbered males[12]. Among young adults in Greece (mean age 21 years), suicidal ideation was reported by 7.8% of them, without gender differences[37]. A large research among young adults in the USA (18-25 year-olds) concluded that 12-month prevalence of suicidal ideation had increased from 6.1% in 2009 to 8.3% in 2015. The prevalence of suicide attempts increased from 1.1% to 1.6% for the same period[38].

Swiss data indicate that overall, almost two out of every five young adults with common mental disorders had current suicidal ideation and 13% a lifetime prevalence of suicide attempt[24].

2.4 Seeking treatment

Although prevalence rates for mental health disorders are high, seeking specific treatment does not seem to follow, as less than half of youth with current mental health issues receive specialized treatment[8].

Among US adolescents, even though prevalence rates increased, those seeking treatment were relatively stable, from 36.4% in 2005 to 42% in 2014, with no significant overall differences[2]. Another US study among 12-17 year-olds reported that 79% of those with depression, 64% of those with anxiety and 61% of those with behavioral problems had received treatment in the previous year[14], while in another one[15] 43% of those having been screened positive for mental health problems had been receiving services in the previous three months. A German study among young people with anxiety disorders concluded that only 39% had used any health care services[12]. A research from Chile[17] stated that only 18% of females and 16% of males with major depressive episode were on psychotherapy, and that 5% of females and 9% of males were on pharmacotherapy for depression. However, Australian data for 14-15 year-olds[39] indicate that almost all of them (around 90%) had sought help, whether formal or informal.

Swiss data[24] indicate that among young adults with common mental health disorders, 52% perceived ever having needed care for their disorders and 38% had ever used services. Only 17% were current service users. In all cases, females outnumbered males.

2.5 Objectives

The objectives of this research are:

- To assess the prevalence of mental health disorders (depression and/or anxiety) among adolescents (14-19 year-olds) in Switzerland and Liechtenstein.
- To identify individual, family, social and environmental factors associated to these disorders.

3 Methods

3.1 The questionnaire

Since this questionnaire was held mostly during the summer school holidays, we chose a method of dissemination via social networks. The questionnaire, in the three main languages of the Confederation, was distributed through the following websites and social networks: Instagram, Facebook, Twitter and LinkedIn. Unisanté and UNICEF created sponsored ads on Facebook and Instagram, initially targeting young people between the ages of 14 and 19 living in Switzerland and Liechtenstein. Every two weeks, Unisanté readjusted the campaign on Facebook and Instagram in order to reach a certain audience more according to the responses we had received so far (for example, targeting on boys or on the Italian and French-speaking regions of Switzerland). At the request of UNICEF, a relay person in Liechtenstein transferred the link to several entities working with young people. Three French-speaking and one German-speaking influencers also distributed the questionnaire on their Instagram page accompanied by a video or message encouraging young people to respond. Finally, other professional partners such as ciao.ch, infoclic.ch, REL'IER, SANTÉ SEXUELLE SUISSE, infogiovani, etc. also shared the ad on their social networks and / or their newsletters. In addition to the three questionnaires, we created for each language a "test" link for any adult / partner who would like to test it. On June 7 2021, UNICEF launched a press release in all three languages indicating the objectives of the study and links to the questionnaire for young people between 14 and 19 years of age, and its "test" version. On June 10, 2021, Unisanté launched its sponsored ads on Facebook and Instagram. On July 5, we targeted these announcements to the French-speaking and Italian parts of Switzerland as we had seen less responses for these two languages than for German. Finally, on July 19, we kept the emphasis on these two language regions and added more targeting to boys. During the last week of data collection, Unicef redistributed the announcements on the networks. The campaign was closed on August 9th.

The questionnaire included 49 questions involving 124 items divided into 6 sections.

3.1.1 Personal data

- Age: 14-19 years
- Gender: male, female, other (please specify)
- Weight, in kg
- Height, in cm
- Country of residence (Liechtenstein / Switzerland)
  - If residing in Switzerland, in which canton
- In which country were they born (Liechtenstein / Switzerland / Other)
  - If not born in Liechtenstein or Switzerland, in what other country

3.1.2 Family data

- Family structure. What is the current situation of your parents?, with 6 possible answers: They live together, They are separated/divorced, Your father has died, Your mother has died, Both your father and your mother have died, Other (please specify). For certain analyses, the variable was dichotomized into Intact (parents together) for Non-intact family (all other options).
  - If not together, What was your age when the separation/divorce happened?
  - If mother deceased, What was your age when your mother died?
  - If father deceased, What was your age when your father died?
- Relationship with mother. On a scale from 1 (very poor) to 10 (excellent)
- Relationship with father. On a scale from 1 (very poor) to 10 (excellent)
- Relationship between parents. On a scale from 1 (very poor) to 10 (excellent)
- Siblings. *Do you have any brothers or sisters (including half-brothers or half-sisters you live with most of the time)? Yes, No.*
  - If yes, how many
  - If yes, overall / global relationship with siblings. On a scale from 1 (very poor) to 10 (excellent)
- Socioeconomic status. We used the question from the ESPAD survey[40]: *Compared to the one of other families in Switzerland or the Liechtenstein, your family financial situation is…* with 3 possible answers: *Above average, Average, Below average*

3.1.3 Academic/Professional data

- Main activity. What is your main activity? With 8 possible answers: Mandatory school, High-school, Vocational school, University, Working, No activity, Job hunting, Other (please specify).
  - For students. Would you say that you are… with 3 possible answers: A good student (your grades are among the best in your class), An average student (your grades are in the average of your class), A below average student (your grades are below the average of your class).
  - For workers. How satisfied are you with your work, on a scale from 1 (not satisfied at all) to 10 (very satisfied)?

3.1.4 Somatic health data

- Perception of overall health: *Overall you think that your health is…*, with 5 possible answers: *Excellent, Very good, Good, Fair, Poor*. For certain analyses, the variable was dichotomized into good (Excellent, very good, good) and poor (fair, poor) health.

- Chronic diseases. *Do you have a chronic disease (e.g., a disease that lasts for more than a year and that needs regular care like, for example, asthma, diabetes, scoliosis, etc.)*? with 3 possible answers: *No, Yes but it does not limit me, Yes and it limits me*.
  - If yes, which one?
- Sport practice. Do you practice sport outside school? With 4 possible answers: Yes, every day or almost, Yes, 2-3 times per week, Yes, about once a week, No.
- Health care utilization. In the last 12 months, have you… with 4 non-exclusive answers: Consulted your physician (pediatrician, general practitioner), Consulted a psychiatrist or a psychologist, Consulted at the emergency room, Been hospitalized (spending at least one night in a hospital) with 4 possible answers for each one: No, Once or twice, More than two times, I don't know.

3.1.5 Emotional health data

- Emotional wellbeing.We used the World Health Organisation – Five well-being index (WHO-5)[41]. This index includes 5 items (e.g. *I have felt calmed and relaxed*) related to the 2 previous weeks with 6 possible answers ranging from *At no time* (scored 0) to *All the time* (scored 5). The raw score is calculated by totaling the figures of the five answers (0 to 25). A score below 13/25 indicates poor wellbeing. Cronbach's alpha for this study: 0.86.
- Adverse childhood experiences. We used eleven items from the CYW Adverse Childhood Experiences Questionnaire (ACE-Q) Teen Self-Report[42] adapted to the Swiss context (e.g. *You have been/were bullied in school*; *You have been sexually abused*; *You lived with a member of the household who was depressed, had mental health problems or had attempted suicide*), with a dichotomous yes/no answer each. One of them (*You have often been treated badly because of race, sexual orientation, place of birth, disability or religion*) was dichotomized yes/no for each one of the five specific reasons. For certain analyses, the variables were added and divided into 4 groups: *None, One, Two or three, Four or more*.
- Self-esteem. We used the Rosenberg Self-Esteem Scale[43], a ten-item scale (e.g. *On the whole, I am satisfied with myself*; *All in all, I am inclined to feel that I am a failure*) with 4 possible answers ranging from *Strongly disagree* (scored 1) to *Strongly agree* (scored 4). Higher scores indicate a higher self-esteem. However, in this report, we will use the proposed cut-off of <15 for low self-esteem[a]. Cronbach's alpha for this study: 0.91.
- Somatic problems. Four problems related to the previous 2 weeks from the Patient Health Questionnaire-9 (PHQ-9)[44] (*Trouble falling asleep, staying asleep, or sleeping too much; Poor appetite, weight loss, or overeating; Trouble concentrating on things like school, work, reading, or watching TV; Thoughts that you would be better off dead, or of hurting yourself in some way*) were used with four possible answers each: *Not al all, Several days, More than half the days, Nearly every day*.

[a] https://wwnorton.com/college/psych/psychsci/media/rosenberg.htm

- Suicide. The two questions related to lifetime suicide behavior[45] included: *Have you ever thought about suicide* and *Have you ever tried to commit suicide*. Both questions had three possible answers: *No, Yes, I don't want to answer*.
  - If suicide attempt, how many times: *Once, Twice, More than twice*.

After these two questions, independently of the answer, a pop-up with institutions and telephone numbers to be contacted in case of need appeared as a safety net.

- Main resources in case of emotional distress. Whom do you turn to when you don't feel well emotionally? With 10 possible answers: Parent(s), Siblings, Other family member(s), Friends, Girl/boy-friend, Psychiatrist/psychologist/mental health specialist, Another health professional, School staff (teacher, mediator, director, etc.), Nobody, Other (please specify).

- Functional limitations. In the last 6 months, has a health/emotional problem limit you to do the same things that people your age do? With 3 possible answers: Yes, No, I don't know.
  - Among those answering Yes→In which domain(s)? with 6 options: School, Family, Fiends, Sport practice, Work, Other situations.

- Depression. We used the first 5 items of the 6-item Kutcher Adolescent Depression Scale (KADS-6)[46], with 4 possible answers each: *Hardly ever, Much of the time, Most of the time, All of the time*. We decided to remove the last item to avoid repetitions as we studied suicide apart. Each item was scored 0 to 3 for a total score ranging from 0 to 15. A total score over 5 was considered as suggestive of possible depression. Cronbach's alpha for this study: 0.88.

- Anxiety. We used the Generalised Anxiety Disorder Questionnaire (GAD-7)[47]. The questionnaire has 7 items (e.g., *Feeling nervous, anxious, or on edge*; *Feeling afraid, as if something awful might happen*) referred to the previous 2 weeks (*Over the last two weeks, how often have you been bothered by the following problems?*). Each item had 4 possible answers: *Not at all, Several days, More than half the days, Nearly every day*, scored from 0 to 3, for a total score ranging from 0 to 21. Scores 0–4 were considered minimal anxiety; 5–9: mild anxiety; 10–14: moderate anxiety; and 15–21: severe anxiety. Cronbach's alpha for this study: 0.88.

- Risky behaviors. *In the past 30 days, how often have you…* with 7 non-exclusive options (*Smoked cigarettes or other tobacco products, Been drunk, Used cannabis or other drugs, Shoplifted, Participated in a fight, Purposely destroyed someone else property, Used public transportation without a valid ticket*). For each behavior, there were 4 possible answers: *Never, Once, More than once but not weekly, Weekly or more often*. For certain analyses, the variables were dichotomized into Yes (at least once) and No (Never).

3.1.6 COVID-19 related data

- Feelings about the pandemic. How do you feel, in general, regarding the COVID-19 pandemic? (single choice question). Eight options were proposed: Calm, Anguished, Happy, Tired, Sad, Upset, Indifferent, Other (please specify)

- Effects of the pandemic. Since the beginning of the COVID-19 pandemic, you would say that…. with three domains: Your physical health is…., Your mental health is…, Your future seems… and four possible answers for each one: Better, The same, Worse, I don't know.

- Consequence of the pandemic. Do you know someone who died of COVID-19?, with four possible answers: Yes, a friend; Yes, a family member; Yes an acquaintance; No.

The last question asked participants whether they thought that their answers were honest enough to be used in the analyses. This question was used as a first step to clean up the database.

At the end of the questionnaire, participants were asked if they wanted to participate in a prize-draw for 150 electronic gift-cards with a value of 20 CHF each. If they wanted to participate, they had to provide an email address or a mobile phone number in order to be able to contact them if they won. These addresses and phone numbers were saved in a different database, and deleted at the end of the contest.

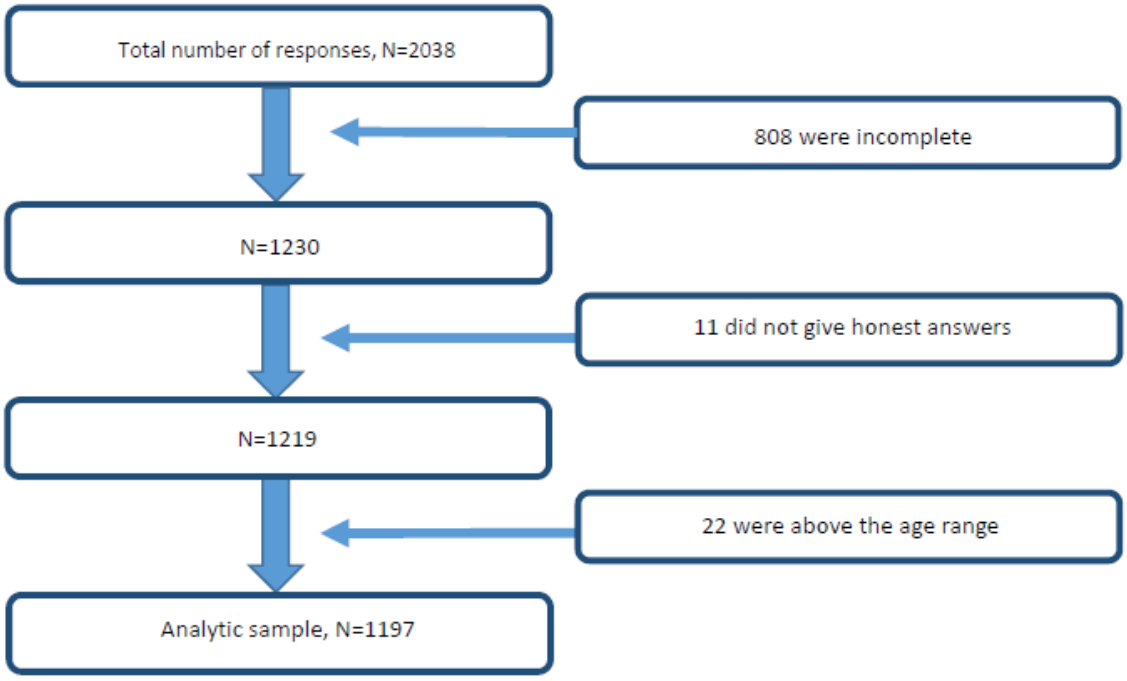
Finally, the safety net with the institutions and telephone numbers to be contacted in case of need appeared again.

3.2 Sampling method

3.2.1 The sample

Overall, 2038 participants entered the questionnaire during the 2 months of data collection. Among them, 808 (39.6%) were incomplete (they did not reach the end of the questionnaire) and not included in the analysis. Additionally, 11 (0.5%) indicated that they had not been honest with their answers and 22 (1.1%) were not in the age range (they indicated being older than 19 years) and were all removed. The analytic sample included 1197 individuals, 58.7% of all respondents (Figure 1).

Figure 1 Flow chart of the sampling method.



We compared complete and incomplete questionnaires, and there were no significant differences in gender, age, socioeconomic status or emotional wellbeing. There were no differences either between valid and non-valid questionnaires regarding the same variables.

3.2.2 Weighting method

Because the sample was not constructed according to probabilistic principles, the distribution of the raw data collected was not sufficiently representative of the populations of young people aged 14 to 19 residing in Switzerland and Liechtenstein. As a result, weights were calculated to adjust the sample, and all subsequent statistical calculations were made taking these weights into account.

In the case of Switzerland, the weights were calculated to ensure that the tri-variate distribution between gender, age and region of residence was correct. It was decided to use the region of residence (according to the seven major regions defined by Swiss Statistics: Lake Leman regions [22.2%]; Espace Mittelland [22.4%]); North-West Switzerland [12.0%]; Zurich [16.6%]; Eastern Switzerland [14.0%]; Central Switzerland [8.9%]; Ticino [3.9%]), rather than the canton, because the

number of respondents in some cantons was very low. Each age from 14 to 19 years was considered separately. For gender, non-binary people were given a unit weighting, as their actual proportion in the Swiss population was not known. The same calculations were made for Liechtenstein, but only considering gender and age because of the small size of this country. Finally, a set of weights was also constructed that allowed calculations to be made at the level of the two countries simultaneously, taking into account the respective size of the 14-19 year old populations within the two countries.

3.2.3 Statistical analysis

In this descriptive analysis, we used Chi2 test to compare categorical variables and student's t test or ANOVA for continuous ones. We set the significance level at 0.05.

3.2.4 Ethical considerations

The study protocol was submitted to the Ethics commission of the canton of Vaud (CER-VD; protocol number 2021-00899) and given a waiver, as it did not need to be evaluated according to Swiss law.

4 Results

4.1 Overall results

The following results refer to the whole database including both Switzerland and the Liechtenstein.

4.1.1 Sociodemographic characteristics (Table 3)

Overall, participants had a mean age of 16.52 years, with almost the same percentage of males and females. In 33 cases (2.8%) participants defined their gender as *other*, with the majority (N=20) reporting non-binary. The rest indicated, Gender fluid (N=3), Agender (N=3) Hermaphrodite (N=2), Transgender (N=2), and three did not specify it.

One participant out of every eight (12.4%) was foreign-born. The majority had their parents living together (72.3%) and had siblings (91%), mostly one (56%). Eleven percent of them reported that their family's socioeconomic status was below average compared to other families in their country.

Their main activity was post-mandatory school for over one third of them and only 5.4% indicated being a below average student. Among those who worked, their mean degree of satisfaction was 7.16/10.

Table 3 Sociodemographic characteristics

		N / Mean	% / SE
Age			
	14	202	16.9
	15	189	15.7
	16	200	16.7
	17	201	16.8
	18	202	16.9
	19	203	17.0
Mean age (±SE)		16.52	0.09
Gender			
	Male	586	48.9
	Female	578	48.3
	Other	33*	2.8
Residence			
	Switzerland	1192	99.5
	Liechtenstein	5	0.5
Country of birth			

	N / Mean	% / SE
Switzerland	1045	87.3
Liechtenstein	4	0.3
Other	148	12.4
Family structure		
Parents live together	866	72.3
Parents separated/divorced	292	24.4
Father deceased	34	2.8
Mother deceased	4	0.4
Both parents deceased	1	0.1
Mean age (±SE) at parents' divorce/separation	8.22	0.39
Mean age (±SE) at mother's death	11.99	2.20
Mean age (±SE) at father's death	11.14	0.78
Relationship with mother (scale from 1 to 10; mean±SE)	7.80	0.08
Relationship with father (scale from 1 to 10; mean±SE)	7.21	0.10
Relationship between your parents (scale from 1 to 10 ; mean±SE)	6.97	0.12
Do you have siblings (yes)	1090	91.0
Number of siblings		
One	610	56.0
Two/three	431	39.6
Four or more	49	4.4
Relationship with siblings (scale from 1 to 10; mean±SE)	7.48	0.09
Socioeconomic status		
Above average	343	28.6
Average	724	60.5
Below average	130	10.9
Main activity		
Mandatory school	244	20.3
Post-mandatory school	449	37.6
Higher education	32	2.6
University	85	7.1
Pre-apprenticeship	13	1.1
Apprenticeship	287	24
Work	41	3.4
No activity	26	2.2
Job hunting	20	1.7
Academic level (for students)		

	N / Mean	% / SE
Above average student	456	41.9
Average student	573	52.7
Below average student	59	5.4
Satisfaction with work (for workers; scale from 1 to 10; mean±SE)	7.16	0.19

*Non binary (N=20), Gender fluid (N=3), Agender (N=3) Hermaphrodite (N=2), Transgender (N=2), Not mentioned (N=3)

4.1.2 Somatic health (Table 4)

The vast majority of youths reported that their health was between good and excellent, and only one in six referred to their perceived health status as fair or poor. Almost one in eight declared suffering from a chronic condition, but only 3% indicated that the condition limited their daily activities. One fifth were overweight or obese.

More than 70% revealed sleep troubles and about two-thirds problems with appetite or concentration at least for several days in the previous 2 weeks. Two-thirds of participants had seen their primary care provider in the previous year and one quarter a mental health provider. While 17% had consulted at the emergency room in the same timeframe, only 11% had been hospitalized at least one fortnight.

Table 4 Somatic health

	N	%
Perceived health		
Excellent	113	9.5
Very good	485	40.5
Good	392	32.7
Fair	176	14.7
Poor	31	2.6
Having a chronic condition		
No	1050	87.7
Yes, but it does not limit me	107	9.0
Yes, and it limits me	40	3.3
Body mass index		
Underweight	29	2.4
Normal weight	928	77.5
Overweight	194	16.2
Obesity	46	3.9
Symptoms in the last 2 weeks		

	N	%
Trouble falling asleep, staying asleep, or sleeping too much		
Not at all	341	28.4
Several days	476	39.8
More than half the days	146	12.2
Nearly every day	234	19.6
Poor appetite, weight loss, or overeating		
Not at all	396	33.1
Several days	437	36.5
More than half the days	164	13.7
Nearly every day	200	16.7
Trouble concentrating on things like school, work, reading, or watching TV		
Not at all	374	31.2
Several days	495	41.4
More than half the days	140	11.7
Nearly every day	188	15.7
Thoughts that you would be better off dead, or of hurting yourself in some way		
Not at all	824	68.9
Several days	215	17.9
More than half the days	64	5.4
Nearly every day	94	7.8
In the last 12 months, have you…		
Consulted your primary care provider		
No	386	32.3
Once or twice	491	41.1
More than twice	261	21.8
I don’t know	59	4.9
Consulted a mental health specialist		
No	896	74.9
Once or twice	59	4.9
More than twice	231	19.3
I don’t know	11	0.9
Consulted the emergency room		
No	976	81.5
Once or twice	176	14.7
More than twice	29	2.5
I don’t know	16	1.3

	N	%
Been hospitalized (at least one fortnight)		
No	1066	89.0
Once or twice	104	8.7
More than twice	23	1.9
I don't know	4	0.4

4.1.3 Mental health (Table 5)

Almost half of the sample (45%) reported low emotional wellbeing and one-third a low self-esteem. One third were depressed, one fourth declared moderate to severe anxiety, and 37% were depressed and/or anxious. Seven out of every ten had suffered from at least one adverse childhood experience, with school bullying or harassment being the most frequent. Among those reporting some kind of discrimination, sexual orientation was the most frequently cited, with almost half of the cases.

While 45.7% had ever had suicide ideations, 8.7% had ever attempted suicide. Forty percent of suicide attempters had tried it more than twice. Regarding whom they turned to when emotionally disturbed, nobody (29.1%) and friends (29%) were the most frequently cited.

Almost 40% of participants had felt limited in their activities in the previous 6 months. Activities with friends was the most often cited.

Table 5 Mental health

	N	%
Emotional wellbeing (poor)	543	45.4
Adverse childhood experiences		
You live or have lived with a person with mental health problems	329	27.5
A household member swore at, insulted, humiliated, or put you down in a way that scared you	301	25.2
Someone touched your private parts or asked you to touch their private parts in a sexual way that was unwanted, against your will, or made you feel uncomfortable	125	10.5
You live or have lived with a person with substance use problems	146	12.2
You often felt unsupported, unloved and/or unprotected	340	28.4
Have ever been in foster care	30	2.5

	N	%
Are you currently in foster care	24	2.0
You have experienced harassment or bullying at school	531	44.4
You have been hospitalized for a long period (over a month)	54	4.6
You have experienced verbal or physical abuse or threats from a romantic partner	112	9.4
You have often been treated badly because of race, sexual orientation, place of birth, disability or religion	154	12.9
Type of discrimination (n=154)		
Race	60	38.9
Sexual orientation	75	48.7
Place of birth	35	22.5
Handicap	15	9.6
Religion	30	19.3
Number of adverse childhood experiences		
None	369	30.8
One	321	26.8
Two or three	294	24.6
Four or more	213	17.8
Self-esteem (low)	378	31.5
Have you ever thought about suicide		
No	547	45.7
Yes	537	44.9
I don’t want to answer	113	9.4
Have you ever attempted suicide		
No	1050	87.7
Yes	104	8.7
I don’t want to answer	43	3.6
How many times have you attempted suicide (n=104)		
Once	38	36.4
Twice	24	23.3
More than twice	42	40.3
Whom do you turn to when you don’t feel well emotionally		
Parents	225	18.8
Siblings	54	4.5
Other family member(s)	12	1.0
Friends	346	29.0

	N	%
Boy/girlfriend	122	10.2
Mental health specialist	72	6.0
Other medical professional	2	0.2
School staff	11	0.9
Nobody	349	29.1
Other	4	0.3
For at least the past 6 months, have you been limited in activities people your age usually do because of a health or emotional problem?		
No	589	49.2
Yes	458	38.3
I don't know	150	12.5
In which domain(s)? (n=458)		
School	245	53.4
Family	121	26.4
Friends	292	63.7
Sport practice	245	54.1
Work	96	20.9
Other situations	96	20.9
Depression scale (yes)	400	33.4
Anxiety scale		
Minimal	523	43.7
Mild	379	31.6
Moderate	178	14.9
Severe	117	9.8
Depression and/or anxiety*	446	37.3

*Includes only Moderate or Severe anxiety

4.1.4 Risk behaviors (Table 6)

Around one-third of respondents were current smokers, and 40% had been drunk and 20% had used cannabis or other illegal drugs in the last month. Slightly over one third had used public transportation without a valid ticket during the same period, while around ten percent had shoplifted, been in a fight or destroyed something.

Table 6 Risk behaviors

	N	%
Has smoked		
Never	756	63.2
Once	121	10.1
More than once but less than weekly	119	9.9
Weekly or more often	201	16.8
Has been drunk		
Never	737	61.6
Once	218	18.2
More than once but less than weekly	177	14.8
Weekly or more often	65	5.4
Has used cannabis or other drugs		
Never	955	79.7
Once	83	7.0
More than once but less than weekly	104	8.7
Weekly or more often	55	4.6
Has shoplifted		
Never	1096	91.6
Once	67	5.5
More than once but less than weekly	26	2.2
Weekly or more often	8	0.7
Has been in a fight		
Never	1071	89.5
Once	93	7.7
More than once but less than weekly	32	2.7
Weekly or more often	1	0.1
Have willfully destroyed something that did not belong to them		
Never	1076	89.9
Once	89	7.4
More than once but less than weekly	25	2.1
Weekly or more often	7	0.6
Used public transportation without a valid ticket		
Never	78.65	65.6
Once	208	17.4
More than once but less than weekly	152	12.7
Weekly or more often	51	4.3

4.1.5 COVID-related opinions (Table 7)

The main feeling regarding the pandemic was being tired (27.7%) followed by being calm (22.7%) and indifferent (18.3%). Since the beginning of the pandemic, one-quarter stated that their physical health was worse, 47.1% that their mental health was worse and 27.9% that their future looked worse. One quarter of participants knew someone who had died of COVID, mainly acquaintances.

Table 7 COVID-related opinions

	N	%
How do you feel regarding the COVID-19 pandemic		
Calm	272	22.7
Anguished	65	5.5
Happy	49	4.1
Tired	332	27.7
Sad	66	5.5
Upset	175	14.6
Indifferent	219	18.3
Other	19	1.6
Since the beginning of the COVID-19 pandemic, you would say that….		
Your physical health is…		
Better	179	15.0
The same	662	55.3
Worse	292	24.4
I don’t know	64	5.3
Your mental health is…		
Better	118	9.8
The same	396	33.1
Worse	564	47.1
I don’t know	119	10.0
Your future looks…		
Better	183	15.3
The same	505	42.2
Worse	334	27.9
I don’t know	175	14.6

		N	%
Do you know someone who died of COVID-19? (yes)		292	24.4
Whom was it?*			
	A friend	12	0.4
	A family member	87	29.7
	An acquaintance	217	74.4

*More than one answer possible

4.2 Results by country

The general results were virtually the same than those for Switzerland as the weight of Liechtenstein in the combined sample is very small due to the difference in the population size. To have a more accurate view, the following results are presented by country, with their own weights.

4.2.1 Sociodemographic characteristics (Table 8)

Liechtenstein and Switzerland did not differ much socio-demographically, and this reflected in the samples. The only main observed differences referred to school: apprenticeships were more common among the Swiss sample, and more students in Liechtenstein reported being below average.

Table 8 Sociodemographic characteristics by country (results are presented as means ± standard deviation or percentages

		Liechtenstein (n=209)	Switzerland (n=988)
Age			
	14	15.3	16.9
	15	17.1	15.7
	16	17.6	16.7
	17	15.2	16.8
	18	17.3	16.9
	19	17.5	17.0
Mean age (±SD)		16.55±0.22	16.52±0.09
Gender			
	Male	50.8	48.9
	Female	47.8	48.3
	Other	1.4[1]	2.8
Foreign-born		10.7	12.4

	Liechtenstein (n=209)	Switzerland (n=988)
Family structure		
Parents live together	69.5	72.4
Parents separated/divorced	29.0	24.3
Father deceased	1.3	2.8
Mother deceased	0.2	0.4
Both parents deceased	0	0.1
Mean age (±SD) at parents' divorce/separation	9.54±1.15	8.21±0.39
Mean age (±SD) at mother's death	16	11.99±2.23
Mean age (±SD) at father's death	8.51±1.41	11.15±0.79
Relationship with mother (scale from 1 to 10; mean±SD)	8.68±1.70	7.80±0.08
Relationship with father (scale from 1 to 10; mean±SD)	7.91±0.27	7.21±0.10
Relationship between your parents (scale from 1 to 10) ; mean±SD	7.37±0.30	6.97±0.12
Do you have siblings (yes)	86.1	91.1
Number of siblings		
One	54.2	56.0
Two/three	40.8	39.6
Four or more	5.0	4.4
Relationship with siblings (scale from 1 to 10; mean±SD)	8.30±0.14	7.48±0.09
Socioeconomic status		
Above average	20.6	28.7
Average	74.5	60.4
Below average	4.9	10.9
Main activity		
Mandatory school	28.6	20.3
Post-mandatory school	68.6	37.4
Higher education	1.0	2.7
University	0	7.2
Pre-apprenticeship	0	1.1
Apprenticeship	1.8	24.1
Work	0	3.4
No activity	0	2.1
Job hunting	0	1.7
Academic level (for students)		
Above average student	40.2	41.9
Average student	47.4	52.7
Below average student	12.4	5.4

	Liechtenstein (n=209)	Switzerland (n=988)
Satisfaction with work (for workers; scale from 1 to 10; mean±SD)	4.86±1.99[2]	7.17±0.19

[1]Non-binary (1); Gender fluid (1); Hermaphrodite (1)

[2]Only 2 participants responded to this question

4.2.2 Somatic health (Table 9)

Participants in Liechtenstein were more likely to consider their health as excellent compared to their Swiss counterparts and more likely to be in the normal range weight. They were also less likely to report sleeping or appetite troubles or wanting to hurt themselves. No differences were observed for concentration issues. Although they seemed to consult their primary care provider at the same pace, they were also less likely to have consulted a mental health professional or to have attended the emergency department. However, hospitalization rates were similar.

Table 9 Sociodemographic characteristics by country (results are presented as means ± standard deviation or percentages)

	Liechtenstein (n=209)	Switzerland (n=988)
Perceived health		
Excellent	24.4	9.4
Very good	35.0	40.5
Good	26.7	32.8
Fair	10.3	14.7
Poor	3.6	2.6
Having a chronic condition		
No	87.6	87.7
Yes, but it does not limit me	11.6	9.0
Yes, and it limits me	0.8	3.3
Body mass index		
Underweight	4.8	2.4
Normal weight	82.1	77.5
Overweight	7.1	16.3
Obesity	6.0	3.8
Symptoms in the last 2 weeks		
Trouble falling asleep, staying asleep, or sleeping too much		
Not at all	42.4	28.4
Several days	26.1	39.9
More than half the days	11.7	12.2

	Liechtenstein (n=209)	Switzerland (n=988)
Nearly every day	19.8	19.5
Poor appetite, weight loss, or overeating		
Not at all	54.7	33.0
Several days	25.5	36.6
More than half the days	9.1	13.7
Nearly every day	10.7	16.7
Trouble concentrating on things like school, work, reading, or watching TV		
Not at all	34.2	31.2
Several days	43.9	41.4
More than half the days	10.1	11.7
Nearly every day	11.8	15.7
Thoughts that you would be better off dead, or of hurting yourself in some way		
Not at all	81.2	68.8
Several days	10.2	18.0
More than half the days	4.9	5.4
Nearly every day	3.7	7.8
In the last 12 months, have you…		
Consulted your primary care provider		
No	34.5	32.2
Once or twice	39.5	41.1
More than twice	19.8	21.8
I don’t know	6.2	4.9
Consulted a mental health specialist		
No	85.4	74.8
Once or twice	2.0	5.0
More than twice	11.3	19.3
I don’t know	1.3	0.9
Consulted the emergency room		
No	91.4	81.5
Once or twice	6.8	14.8
More than twice	0.9	2.4
I don’t know	0.9	1.3
Been hospitalized (at least one fortnight)		
No	91.7	89.0
Once or twice	5.9	8.7
More than twice	1.2	1.9

	Liechtenstein (n=209)	Switzerland (n=988)
I don't know	1.2	0.4

4.2.3 Mental health by country (Table 10)

Overall, participants in Liechtenstein were better off in all mental health indicators than their Swiss peers. Moreover, they were also less likely to have suffered adverse childhood experiences and only 7% of them had suffered four or more of them. While in Switzerland nobody and friends were, by far, whom participants turned to when in trouble emotionally, in Liechtenstein it was parents, although followed very closely by friends.

Table 10 Mental health by country (results are presented as percentages)

	Liechtenstein (n=209)	Switzerland (n=988)
Emotional wellbeing (poor)	39.5	45.4
Adverse childhood experiences		
You live or have lived with a person with mental health problems	21.8	27.5
A household member swore at, insulted, humiliated, or put you down in a way that scared you	13.8	25.2
Someone touched your private parts or asked you to touch their private parts in a sexual way that was unwanted, against your will, or made you feel uncomfortable	5.5	10.5
You live or have lived with a person with substance use problems	10.3	12.2
You often felt unsupported, unloved and/or unprotected	19.4	28.5
Have ever been in foster care	2.2	2.5
Are you currently in foster care	3.1	2.0
You have experienced harassment or bullying at school	20.6	44.5
You have been hospitalized for a long period (over a month)	5.0	4.6
You have experienced verbal or physical abuse or threats from a romantic partner	7.6	9.4
You have often been treated badly because of race, sexual orientation, place of birth, disability or religion	5.4	12.9
Type of discrimination		
Race	38.0	38.9

	Liechtenstein (n=209)	Switzerland (n=988)
Sexual orientation	72.1	48.7
Place of birth	55.2	22.4
Handicap	0	9.6
Religion	24.9	19.3
Number of adverse childhood experiences		
None	46.8	30.8
One	20.1	26.8
Two or three	26.0	25.6
Four or more	7.1	17.8
Self-esteem (poor)	21.4	31.6
Have you ever thought about suicide		
No	71.2	45.6
Yes	20.5	45.0
I don't want to answer	8.3	9.4
Have you ever attempted suicide		
No	94.2	87.7
Yes	2.4	8.7
I don't want to answer	3.4	3.6
How many times have you attempted suicide		
Once	59.2	36.3
Twice	10.4	23.3
More than twice	30.4	40.4
Whom do you turn to when you don't feel well emotionally		
Parents	28.3	18.8
Siblings	1.4	4.6
Other family member(s)	7.6	0.9
Friends	26.1	28.9
Boy/girlfriend	10.4	10.2
Mental health specialist	4.8	6.0
Other medical professional	0	0.2
School staff	0.2	0.9
Nobody	21.1	29.2
Other	0.1	0.3
For at least the past 6 months, have you been limited in activities people your age usually do because of a health or emotional problem?		
No	58.9	49.2

	Liechtenstein (n=209)	Switzerland (n=988)
Yes	32.7	38.3
I don't know	8.4	12.5
In which domain(s)?		
School	44.6	53.4
Family	12.8	26.4
Friends	64.5	63.7
Sport practice	53.8	54.1
Work	0	20.9
Other situations	12.6	20.9
Depression scale (yes)	21.7	33.5
Anxiety scale		
Minimal	52.6	43.6
Mild	29.6	31.7
Moderate	11.6	14.9
Severe	6.2	9.8
Depression and/or anxiety*	25.9	37.3

*Includes only Moderate or Severe anxiety

4.2.4 Risk behaviors by country (in the last 30 days) (Table 11)

Tobacco smoking and alcohol misuse (drunkenness) were more often reported in Liechtenstein, while the use of cannabis or other drugs was more common in Switzerland. The prevalence rates for the other behaviors were quite similar.

Table 11 Risk behaviors by county in the last 30 days (results are presented as percentages)

	Liechtenstein (n=209)	Switzerland (n=988)
Has smoked		
Never	58.3	63.2
Once	9.2	10.1
More than once but less than weekly	13.7	9.9
Weekly or more often	18.8	16.8
Has been drunk		
Never	50.8	61.7
Once	20.6	18.2
More than once but less than weekly	17.0	14.7

	Liechtenstein (n=209)	Switzerland (n=988)
Weekly or more often	11.6	5.4
Has used cannabis or other drugs		
Never	83.5	79.7
Once	4.5	7.0
More than once but less than weekly	7.6	8.7
Weekly or more often	4.4	4.6
Has shoplifted		
Never	87.2	91.6
Once	5.0	5.6
More than once but less than weekly	5.6	2.2
Weekly or more often	2.2	0.6
Has been in a fight		
Never	91.6	89.5
Once	7.3	7.7
More than once but less than weekly	0.3	2.7
Weekly or more often	0.8	0.1
Have willfully destroyed something that did not belong to them		
Never	90.8	89.9
Once	6.1	7.4
More than once but less than weekly	2.0	2.1
Weekly or more often	1.1	0.6
Has used public transportation without a valid ticket		
Never	60.7	65.6
Once	20.7	17.4
More than once but less than weekly	17.8	12.7
Weekly or more often	0.8	4.3

4.2.5 COVID-related opinions by country (Table 12)

For both countries, feeling tired and calm were the two most reported feelings regarding the pandemic. However, while for Switzerland being indifferent ranked third, in Liechtenstein it was being upset. For all other indicators, Liechtenstein participants described slightly better outcomes than their Swiss counterparts did.

Table 12 COVID-related opinions by country (results are presented as percentages)

	Liechtenstein (n=209)	Switzerland (n=988)
How do you feel regarding the COVID-19 pandemic		
Calm	34.5	22.6
Anguished	5.2	5.5
Happy	2.8	4.1
Tired	36.4	27.7
Sad	2.1	5.5
Upset	10.0	14.7
Indifferent	7.7	18.3
Other	1.3	1.6
Since the beginning of the COVID-19 pandemic, you would say that….		
Your physical health is…		
Better	20.8	15.0
The same	54.5	55.3
Worse	19.9	24.4
I don't know	4.8	5.3
Your mental health is…		
Better	8.4	9.8
The same	51.8	33.0
Worse	31.9	47.2
I don't know	7.9	10.0
Your future looks…		
Better	13.7	15.3
The same	56.9	42.1
Worse	20.3	28.0
I don't know	9.1	14.6
Do you know someone who died of COVID-19? (yes)	20.6	24.4
Whom was it?*		
A friend	3.2	4.0
A family member	33.0	29.7
An acquaintance	67.9	74.4

*More than one answer possible

4.3 Results by gender

In the following tables, as there were only 33 participants defining themselves as *other* gender, results have been compared both between males and females (P-value M/F) and between the three gender groups (P-value M/F/O).

4.3.1 Sociodemographic characteristics by gender (Table 13)

Overall, the three groups did not differ much in their sociodemographic characteristics, but when they did, results tended to be less positive for females than for males and for *other* than for females. This could be seen in characteristics such as family structure, for example.

Table 13 Sociodemographic characteristics compared by gender (results are presented as means ± standard deviation or percentages)

		Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)*	P-value M/F/O
Age				NS		NS
	14	17.1	16.3		22.2	
	15	14.7	16.5		22.2	
	16	16.8	16.2		22.2	
	17	17.2	16.4		18.5	
	18	17.6	16.7		7.5	
	19	16.6	17.9		7.4	
Mean age (±SE)		16.53±0.06	16.54±0.08	NS	15.89±0.29	NS
Residence				NS		NS
	Switzerland	99.5	99.5		99.8	
	Liechtenstein	0.5	0.5		0.2	
Country of birth				NS		NS
	Switzerland	86.1	88.7		85.0	
	Liechtenstein	0.3	0.4		0.2	
	Other	13.6	10.9		14.8	
Family structure (parents live together)		77.3	68.5	<.05	51.8	<.01
Mean age (±SE) at parents' divorce/separation		8.16±0.81	8.28±038	NS	8.17±1.12	NS
Mean age (±SE) at mother's death		//	13.46±2.68	//	10.00±3.02	NS
Mean age (±SE) at father's death		11.69±1.20	10.41±0.86	NS	10.50±3.24	NS
Relationship with mother (scale from 1 to 10; mean±SE)		7.96±0.15	7.73±0.08	NS	5.92±0.44	<.01
Relationship with father (scale from 1 to 10; mean±SE)		7.68±0.17	6.84±0.10	<.0001	5.40±0.53	<.0001

	Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)*	P-value M/F/O
Relationship between your parents (scale from 1 to 10; mean±SE)	7.45±0.19	6.57±0.11	<.001	5.33±0.54	<.0001
Do you have siblings (yes)	93.9	89.1	NS	74.0	<.01
Number of siblings			NS		NS
One	58.8	52.5		65.0	
Two/three	36.5	43.3		30.0	
Four or more	4.7	4.2		5.0	
Relationship with siblings (scale from 1 to 10; mean±SE)	7.57±0.16	7.44±0.08	NS	6.30±0.60	NS
Socioeconomic status			<.05		NS
Above average	34.2	23.6		18.5	
Average	56.2	64.3		70.4	
Below average	9.6	12.1		11.1	
Main activity			.001		<.01
Mandatory school	21.2	19.6		18.5	
Post-mandatory school	30.2	44.4		48.2	
Higher education	2.2	2.8		7.4	
University	6.0	8.5		3.7	
Pre-apprenticeship	0.6	1.7		0	
Apprenticeship	32.0	16.6		11.1	
Work	2.6	4.3		3.7	
No activity	3.0	1.0		7.4	
Job hunting	2.2	1.1		0	
Academic level (for students)			NS		NS
Above average student	40.9	42.6		47.9	
Average student	52.3	53.7		39.1	
Below average student	6.8	3.7		13	
Satisfaction with work (for workers; scale from 1 to 10; mean±SE)	7.36±0.28	6.85±0.16	NS	6.50±1.75	NS

*Non binary (N=20), Gender fluid (N=3), Agender (N=3) Hermaphrodite (N=2), Transgender (N=2), Not mentioned (N=3)

4.3.2 Somatic health by gender (Table 14)

The same pattern observed for sociodemographic characteristics was found for somatic health. In this sense, participants in the *other* gender category were more likely to report poorer health, a chronic condition, or troubles with sleep, appetite or concentration than the other two. When only males and females were compared, the latter reported more health issues than males. With the exception of the primary care provider where females were the group most using it, the *other* gender category was the one using more often health services, followed by females.

Table 14 Somatic health compared by gender (results are presented as percentages)

	Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)	P-value M/F/O
Perceived health			<.05		<.001
Excellent	10.9	8.4		3.8	
Very good	46.8	36.0		7.4	
Good	29.8	35.6		33.3	
Fair	9.8	18.2		40.7	
Poor	2.7	1.8		14.8	
Having a chronic condition			<.01		<.001
No	92.5	84.3		63.0	
Yes, but it does not limit me	6.8	10.6		18.5	
Yes, and it limits me	0.7	5.1		18.5	
Body mass index			NS		NS
Underweight	2.6	2.4		0	
Normal weight	75.8	80.1		63.0	
Overweight	17.5	14.4		25.9	
Obesity	4.1	3.1		11.1	
Symptoms in the last 2 weeks					
Trouble falling asleep, staying asleep, or sleeping too much			<.001		<.001
Not at all	38.4	18.4		25.9	
Several days	39.8	41.0		18.5	
More than half the days	9.8	14.8		11.1	
Nearly every day	12.0	25.8		44.5	
Poor appetite, weight loss, or overeating			<.001		<.001
Not at all	46.0	21.1		14.9	
Several days	33.9	39.9		22.2	
More than half the days	9.9	16.4		33.2	
Nearly every day	10.2	22.6		29.7	
Trouble concentrating on things like school, work, reading, or watching TV			<.001		<.001
Not at all	39.2	23.8		18.6	
Several days	41.9	42.2		18.5	
More than half the days	6.8	16.1		22.2	
Nearly every day	12.1	17.9		40.7	
Thoughts that you would be better off dead, or of hurting yourself in some way			<.05		<.001
Not at all	76.2	63.9		25.9	

	Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)	P-value M/F/O
Several days	14.2	21.3		25.9	
More than half the days	3.9	6.3		14.8	
Nearly every day	5.7	8.5		33.4	
In the last 12 months, have you…					
Consulted your primary care provider			<.01		<.01
No	37.8	26.6		33.3	
Once or twice	43.2	39.3		33.3	
More than twice	15.3	28.3		22.3	
I don't know	3.7	5.8		11.1	
Consulted a mental health specialist			<.05		<.01
No	81.0	70.4		44.5	
Once or twice	3.7	6.1		7.4	
More than twice	13.9	23.0		48.1	
I don't know	1.4	0.5		0	
Consulted the emergency room			NS		<.05
No	81.5	82.8		59.3	
Once or twice	14.4	14.5		25.9	
More than twice	2.1	2.2		11.1	
I don't know	2.0	0.5		3.7	
Been hospitalized (at least one fortnight)			NS		NS
No	88.4	90.2		81.5	
Once or twice	10.3	6.9		11.1	
More than twice	0.8	2.7		7.4	
I don't know	0.5	0.2		0	

4.3.3 Mental health by gender (Table 15)

Regarding most mental health issues, females reported worse results than males and the *other* gender category stated the less positive ones. Moreover, differences could be very important between the three groups. For example, while less than one male in five reported low self-esteem, the prevalence raised to two out of five for females and four out of five among *other*. Similarly, one quarter of males, 40% of females and 63% of *other* declared being depressed, while for severe anxiety the prevalence rates were 5.7%, 12.8% and 29.6%, respectively.

Table 15 Mental health compared by gender (results are presented as percentages)

	Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)	P-value M/F/O
Emotional wellbeing (poor)	36.2	52.8	<.001	77.8	<.001
Adverse childhood experiences					
You live or have lived with a person with mental health problems	15.3	37.9	<.001	59.1	<.001
A household member swore at, insulted, humiliated, or put you down in a way that scared you	15.0	33.9	<.001	51.8	<.001
Someone touched your private parts or asked you to touch their private parts in a sexual way that was unwanted, against your will, or made you feel uncomfortable	3.3	16.0	<.001	40.7	<.001
You live or have lived with a person with substance use problems	10.2	14.1	NS	14.8	NS
You often felt unsupported, unloved and/or unprotected	17.7	37.4	<.001	63.0	<.001
You have ever been in foster care	2.2	2.8	NS	3.8	NS
Are you currently in foster care	2.6	1.3	NS	3.8	NS
You have experienced harassment or bullying at school	43.6	42.7	NS	88.8	<.01
You have been hospitalized for a long period (over a month)	2.7	6.2	<.05	7.4	NS
You have experienced verbal or physical abuse or threats from a romantic partner	5.3	12.5	<.05	25.9	<.01
You have often been treated badly because of race, sexual orientation, place of birth, disability or religion	11.3	12.0	NS	55.5	<.001
Number of adverse childhood experiences			<.001		<.001
None	39.8	23.5		0.1	
One	31.4	23.3		7.4	
Two or three	18.4	29.7		44.4	
Four or more	10.4	23.5		48.1	
Type of discrimination					
Race	31.8	50.7	NS	20.0	NS
Sexual orientation	43.8	39.8	NS	100	<.01
Place of birth	23.6	23.8	NS	13.3	NS
Handicap	9.1	7.2	NS	20.0	NS
Religion	21.1	19.2	NS	13.3	NS
Self-esteem (low)	18.6	41.8	<.001	81.5	<.001
Have you ever thought about suicide			<.05		<.01
No	52.4	40.0		25.9	

	Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)	P-value M/F/O
Yes	39.0	49.4		70.4	
I don't want to answer	8.6	10.6		3.7	
Have you ever attempted suicide			<.001		<.001
No	95.2	82.5		48.2	
Yes	4.0	11.3		44.4	
I don't want to answer	0.8	6.2		7.4	
How many times have you attempted suicide			NS		NS
Once	32.8	36.4		41.6	
Twice	35.2	22.4		8.3	
More than twice	32.0	41.1		50.1	
Whom do you turn to when you don't feel well emotionally			NS		<.05
Family member[1]	27.9	21.7		11.1	
Friends[2]	37.4	41.6		29.8	
Health or school professional[3]	5.1	8.0		25.9	
Nobody	29.6	28.7		33.2	
For at least the past 6 months, have you been limited in activities people your age usually do because of a health or emotional problem?			<.01		<.001
No	57.4	42.5		22.3	
Yes	29.3	45.3		74.0	
I don't know	13.3	12.2		3.7	
In which domain(s)?					
School	45.4	56.1	NS	80.2	NS
Family	20.1	29.2	NS	40.0	NS
Friends	57.9	66.0	NS	80.0	NS
Sport practice	64.3	46.3	<.05	65.0	<.05
Work	21.4	20.1	NS	25.0	NS
Other situations	17.6	23.1	NS	20.0	NS
Depression scale (yes)	25.4	40.0	<.01	63.0	<.001
Anxiety scale			<.001		<.001
Minimal	55.7	32.7		22.2	
Mild	27.6	36.1		25.9	
Moderate	11.0	18.4		22.3	
Severe	5.7	12.8		29.6	
Depression and/or anxiety*	28.0	44.9	<.001	66.7	<.001

[1]Includes: parents, siblings and other family members; [2]Includes friends and boy/girlfriend; [3]Includes mental health specialist, other medical professionals, school staff

*Including only Moderate or Severe anxiety

4.3.4 Risk behaviors by gender (Table 16)

The only differences between genders regarding risk behaviors were limited to being in a fight or willfully destroying something.

Table 16 Risk behaviors in the last 30 days compared by gender (results are presented percentages)

	Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)	P-value M/F/O
Has smoked			NS		NS
Never	62.5	63.8		63.0	
Once	10.3	10.4		3.7	
More than once but less than weekly	11.4	8.4		11.1	
Weekly or more often	15.8	17.4		22.2	
Has been drunk			NS		NS
Never	62.9	59.8		70.3	
Once	16.2	20.4		14.8	
More than once but less than weekly	15.3	14.8		3.8	
Weekly or more often	5.6	5.0		11.1	
Has used cannabis or other drugs			NS		NS
Never	80.1	79.5		77.8	
Once	6.2	7.6		7.4	
More than once but less than weekly	9.5	7.9		7.4	
Weekly or more often	4.2	4.9		7.4	
Has shoplifted			NS		NS
Never	91.8	92.2		77.8	
Once	5.3	5.1		18.5	
More than once but less than weekly	2.1	2.4		0	
Weekly or more often	0.8	0.3		3.7	
Has been in a fight			<.05		<.001
Never	85.6	93.6		85.2	
Once	10.4	4.9		11.1	
More than once but less than weekly	4.0	1.5		0	
Weekly or more often	0	0		3.7	
Have willfully destroyed something that did not belong to them			<.05		<.05
Never	88.0	92.0		85.1	

	Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)	P-value M/F/O
Once	7.6	7.3		7.5	
More than once but less than weekly	3.6	0.5		3.7	
Weekly or more often	0.8	0.2		3.7	
Has used public transportation without a valid ticket			NS		NS
Never	67.9	63.4		63.0	
Once	15.2	20.2		7.4	
More than once but less than weekly	13.9	10.9		22.2	
Weekly or more often	3.0	5.5		7.4	

4.3.5 COVID-related opinions by gender (Table 17)

Differences could be observed regarding how participants felt regarding the pandemic. Males reported being calm while females were tired and *other* stated the same level of being tired and indifferent. However, females were more likely than males to report that their physical or mental health and their future were worse since the beginning of the pandemic and the prevalence was even higher for *other*.

Table 17 COVID-related opinions by gender (results are presented as percentages)

	Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)	P-value M/F/O
How do you feel regarding the COVID-19 pandemic			<.05		<.05
Calm	28.5	17.5		11.1	
Anguished	3.7	6.7		14.8	
Happy	6.2	2.1		0	
Tired	22.1	33.0		33.4	
Sad	4.5	6.7		3.7	
Upset	14.2	15.8		3.8	
Indifferent	19.5	16.2		33.2	
Other	1.3	2.0		0	
Since the beginning of the COVID-19 pandemic, you would say that….					
Your physical health is…			<.001		<.001
Better	19.2	11.5		0.1	
The same	60.6	50.0		55.5	

	Males (n=586)	Females (n=578)	P-value M/F	Other (n=33)	P-value M/F/O
Worse	17.7	30.4		37.0	
I don't know	2.5	8.1		7.4	
Your mental health is…			NS		NS
Better	9.6	10.7		0	
The same	38.6	27.5		33.	
Worse	42.1	51.6		55.6	
I don't know	9.7	10.2		11.1	
Your future looks…			<.001		<.001
Better	17.5	13.3		11.1	
The same	51.3	33.6		29.7	
Worse	21.3	33.9		40.7	
I don't know	9.9	19.2		18.5	
Do you know someone who died of COVID-19? (yes)	19.6	29.2	<.05	25.9	<.05
Whom was it?*					
A friend	2.5	4.5	NS	14.3	NS
A family member	28.6	31.3	NS	14.3	NS
An acquaintance	75.0	72.3	NS	100	NS

*More than one answer possible

4.4 Results according to depression scale (Table 18)

Overall, one third of respondents (400/1197; 33.4%) were classified as depressed using the Kutchen Adolescent Depression Scale (KADS).

Participants screened as depressed were slightly, but significantly, older and more likely to be females or *other* gender. They also reported a poorer family situation: they were significantly more likely to live in a non-intact family, to have a worse relationship with their mother or their father and, when they had them, with their siblings. They also described worse academic results and lower professional satisfaction.

Depression was associated to reporting poorer physical health and suffering from a chronic condition. As expected, it was also associated with other indicators of mental health such as poor emotional wellbeing, low self-esteem, anxiety or suicide ideation and attempt.

The vast majority of youths in the depressed group were more likely to report adverse childhood experiences, with a third of them reporting four or more. They were also more likely to reveal substance use, but no differences were observed for the other studied risk behaviors.

Finally, although they were significantly more likely to have consulted a mental health specialist in the last 12 months, the majority (52.4%) had not. In over one third of the cases (36.7%), they turned to nobody when they did not feel well emotionally, followed by their friends (34.7%).

Table 18 Comparison according to depression estimates (results are presented as means ± standard deviation or percentages)

	Not depressed (n=797)	Depressed (n=400)	P-value
Age (mean±SE)	16.40±0.12	16.77±0.12	<.05
Gender			<.001
Male	74.6	25.4	
Female	60.1	39.9	
Other	37.0	63.0	
Body mass index			NS
Underweight	2.5	2.2	
Normal weight	79.8	72.8	
Overweight	14.9	18.9	
Obesity	2.8	6.1	
Family structure (parents living together)	75.5	66.1	<.05
Relationship with mother (scale from 1 to 10; mean±SE)	8.16±0.09	7.08±0.15	<.001
Relationship with father (scale from 1 to 10; mean±SE)	7.71±0.11	6.19±0.18	<.001
Relationship between your parents (scale from 1 to 10; mean±SE)	7.38±0.14	6.14±0.17	<.001
Do you have siblings (yes)	91.7	89.7	NS
Relationship with siblings (scale from 1 to 10; mean±SE)	7.83±0.10	6.78±0.16	<.001
Socioeconomic status			NS
Above average	30.5	25.1	
Average	60.6	60.2	
Below average	8.9	14.7	
Academic level (for students)			<.001
Above average student	45.7	33.6	
Average student	51.3	55.7	
Below average student	3.0	10.7	
Satisfaction with work (for workers; scale from 1 to 10; mean±SE)	7.56±0.20	6.39±0.36	<.01
Perceived health (poor)	5.4	41.0	<.001

	Not depressed (n=797)	Depressed (n=400)	P-value
Having a chronic condition			<.001
No	90.6	81.8	
Yes, but it does not limit me	7.7	11.6	
Yes, and it limits me	1.7	6.6	
Emotional wellbeing (poor)	26.2	83.4	<.001
Any adverse childhood experience	59.7	88.1	<.001
Number of adverse childhood experiences			<.001
None	40.3	11.9	
One	30.0	20.6	
Two or three	20.0	33.8	
Four or more	9.7	33.7	
Self-esteem (poor)	12.6	69.2	<.001
Risk behaviors			
Current smoking (yes)	33.0	44.6	<.01
Current drunkenness (yes)	34.2	46.7	<.01
Current drugs (yes)	16.9	27.0	<.01
Has shoplifted (yes)	6.8	11.5	NS
Has been in a fight (yes)	10.8	10.0	NS
Have willfully destroyed something that did not belong to them (yes)	9.4	11.6	NS
Has used public transportation without a valid ticket (yes)	35.3	32.5	NS
Have you ever thought about suicide			<.001
No	60.1	17.0	
Yes	31.3	72.0	
I don’t want to answer	8.6	11.0	
Have you ever attempted suicide			<.001
No	94.3	74.7	
Yes	4.0	18.1	
I don’t want to answer	1.7	7.2	
How many times have you attempted suicide			<.05
Once	60.9	25.7	
Twice	15.6	26.7	
More than twice	23.5	47.6	
Whom do you turn to when you don’t feel well emotionally			<.0001

	Not depressed (n=797)	Depressed (n=400)	P-value
Family member[1]	29.5	14.3	
Friends[2]	41.5	34.7	
Health or school professional[3]	3.3	14.7	
Nobody	25.7	36.3	
In the last 12 months, have you…			
Consulted your primary care provider			<.05
No	34.4	28.0	
Once or twice	43.4	36.4	
More than twice	18.5	28.3	
I don't know	3.7	7.3	
Consulted a mental health specialist			<.001
No	86.1	52.4	
Once or twice	2.5	9.7	
More than twice	10.6	36.6	
I don't know	0.8	12.3	
Consulted the emergency room			<.01
No	83.8	76.9	
Once or twice	14.5	15.2	
More than twice	1.2	4.9	
I don't know	0.5	3.0	
Been hospitalized (at least one fortnight)			<.05
No	90.2	86.8	
Once or twice	8.4	9.1	
More than twice	0.9	3.9	
I don't know	0.5	0.2	
Anxiety scale			<.001
Minimal	62.4	6.3	
Mild	31.9	31.2	
Moderate	4.1	36.3	
Severe	1.6	26.2	

[1]Includes: parents, siblings and other family members; [2]Includes friends and boy/girlfriend; [3]Includes mental health specialist, other medical professionals, school staff

4.5 Results according to anxiety scale (Table 19)

According to the General Anxiety Disorder (GAD) scale, and considering those in the moderate and severe range as anxious, 24.7% of the sample (296/1197) fell in this category. Females and *other* gender were more likely to be anxious than males.

Participants screened as anxious reported more family problems (parents not living together, poorer relationship with parents and siblings, lower socioeconomic status), had lower academic performances or were less satisfied with their work.

Almost all of them (93.9%) had lived at least one adverse childhood experience and four out of every ten (39.6%), four or more of those. Although there were no differences for tobacco smoking, they were statistically more likely to have been drunk or to have used cannabis or other drugs in the past 30 days. They were also more likely to have shoplifted.

Anxiety was associated both with poorer physical health and with other indicators of poor mental health. However, even though they were statistically more likely to have consulted a mental health provider in the previous 12 months, they had not done so in half of the cases. One third of them (33.6%) turned to nobody when they did not feel well emotionally and 36% to their friends.

Table 19 Comparison according to anxiety estimates (results are presented as means ± standard deviation or percentages)

	Not anxious (n=901)	Anxious (n=296)	P-value
Age (mean±SE)	16.44±0.11	16.74±0.15	NS
Gender			<.0001
Male	83.3	16.7	
Female	68.8	31.2	
Other	48.1	51.9	
Body mass index			NS
Underweight	2.4	2.6	
Normal weight	79.2	72.3	
Overweight	15.2	19.2	
Obesity	3.2	5.9	
Family structure (parents living together)	76.2	60.5	<.001
Relationship with mother (scale from 1 to 10; mean±SE)	8.09±0.08	6.91±0.18	<.0001
Relationship with father (scale from 1 to 10; mean±SE)	7.61±0.11	6.01±0.21	<.0001
Relationship between your parents (scale from 1 to 10; mean±SE)	7.35±0.13	5.83±0.18	<.0001

	Not anxious (n=901)	Anxious (n=296)	P-value
Do you have siblings (yes)	92.3	87.3	NS
Relationship with siblings (scale from 1 to 10; mean±SE)	7.68±0.10	6.86±0.18	.0001
Socioeconomic status			.0001
Above average	30.7	22.4	
Average	61.7	56.7	
Below average	7.6	20.9	
Academic level (for students)			<.01
Above average student	42.7	39.1	
Average student	53.6	49.4	
Below average student	3.7	11.5	
Satisfaction with work (for workers; scale from 1 to 10; mean±SE)	7.32±0.20	6.67±0.44	NS
Perceived health (poor)	8.4	44.4	<.0001
Having a chronic condition			<.0001
No	90.9	78.0	
Yes, but it does not limit me	7.2	14.4	
Yes, and it limits me	1.9	7.6	
Emotional wellbeing (poor)	32.5	84.5	<.0001
Any adverse childhood experience	61.0	93.9	<.0001
Number of adverse childhood experiences			<.0001
None	39.0	6.1	
One	27.8	23.8	
Two or three	22.6	30.5	
Four or more	10.6	39.6	
Self-esteem (poor)	18.7	70.6	<.0001
Risk behaviors			
Current smoking (yes)	37.0	36.4	NS
Current drunkenness (yes)	36.1	45.4	<.05
Current drugs (yes)	17.5	28.6	<.01
Has shoplifted (yes)	7.1	12.4	<.05
Has been in a fight (yes)	11.4	7.8	NS
Have willfully destroyed something that did not belong to them (yes)	9.5	12.0	NS
Has used public transportation without a valid ticket (yes)	35.2	31.9	NS
Have you ever thought about suicide			<.0001

	Not anxious (n=901)	Anxious (n=296)	P-value
No	55.4	16.0	
Yes	35.0	75.2	
I don't want to answer	9.6	8.8	
Have you ever attempted suicide			<.0001
No	93.3	70.8	
Yes	4.5	21.5	
I don't want to answer	2.2	7.7	
How many times have you attempted suicide			<.05
Once	56.7	23.5	
Twice	19.3	25.8	
More than twice	24.0	50.7	
Whom do you turn to when you don't feel well emotionally			<.0001
Family member[1]	27.6	14.8	
Friends[2]	40.3	35.8	
Health or school professional[3]	4.3	15.8	
Nobody	27.8	33.6	
In the last 12 months, have you…			
Consulted your primary care provider			<.01
No	33.6	28.2	
Once or twice	43.5	33.6	
More than twice	18.4	32.1	
I don't know	4.5	6.1	
Consulted a mental health specialist			<.0001
No	82.9	50.2	
Once or twice	3.7	8.7	
More than twice	12.3	40.7	
I don't know	1.1	0.4	
Consulted the emergency room			<.05
No	82.9	77.4	
Once or twice	14.9	14.1	
More than twice	2.3	6.0	
I don't know	0.9	2.5	
Been hospitalized (at least one fortnight)			<.01
No	89.5	87.6	
Once or twice	9.1	7.4	
More than twice	1.0	4.8	

	Not anxious (n=901)	Anxious (n=296)	P-value
I don't know	0.4	0.2	
Depression scale (yes)	16.7	84.6	<.0001

[1]Includes: parents, siblings and other family members; [2]Includes friends and boy/girlfriend; [3]Includes mental health specialist, other medical professionals, school staff

4.6 Results according to depression and/or anxiety (Table 20)

Overall, over one-third (446/1197; 37.3%) of respondents were depressed and/or anxious, and 20.9% screened for both disorders. Those reporting mental health issues were statistically older and more often females or *other* gender than males.

As it was the case when looking at both conditions separately, they were more likely to have a disrupted family life and less success with school or work.

They reported a statistically significant association with poorer physical health, with suffering from a chronic condition and with the other indicators of poor mental health. When they did not feel well emotionally, they were also equally like to turn to friends (35.3%) or to nobody (34.8%). Although they were significantly more likely to have consulted a mental health specialist in the previous 12 months, this had happened in less than half of the cases (44.4% at least once).

While there were no differences for tobacco smoking, they described more often having been drunk or using cannabis or other drugs in the previous 30 days. The difference for the other risk behaviors considered was non-significant.

Almost nine out of every ten of those reporting depression and/or anxiety had suffered from at least one adverse childhood experience and one-third four or more.

Table 20 Comparison according to depression and/or anxiety estimates (results are presented as means ± standard deviation or percentages)

		No (n=751)	Yes (n=446)	P-value
Age (mean±SE)		16.35±0.12	16.81±0.12	<.01
Gender				<.001
	Male	72.0	28.0	
	Female	55.0	45.0	
	Other	33.3	66.7	
Body mass index				NS
	Underweight	2.6	2.1	
	Normal weight	79.5	74.1	

	No (n=751)	Yes (n=446)	P-value
Overweight	15.2	17.9	
Obesity	2.7	5.9	
Family structure (parents living together)	76.4	65.5	<.01
Relationship with mother (scale from 1 to 10; mean±SE)	8.22±0.09	7.06±0.14	<.001
Relationship with father (scale from 1 to 10; mean±SE)	7.81±0.11	6.18±0.17	<.001
Relationship between your parents (scale from 1 to 10; mean±SE)	7.48±0.14	6.09±0.16	<.001
Do you have siblings (yes)	92.1	89.3	NS
Relationship with siblings (scale from 1 to 10; mean±SE)	7.83±0.10	6.88±0.15	<.001
Socioeconomic status			<.05
Above average	30.8	25.1	
Average	61.4	58.9	
Below average	7.8	16.0	
Academic level (for students)			<.01
Above average student	45.3	35.5	
Average student	51.5	54.8	
Below average student	3.2	9.7	
Satisfaction with work (for workers; scale from 1 to 10; mean±SE)	7.54±0.21	6.56±0.33	<.05
Perceived health (poor)	4.6	38.8	<.001
Having a chronic condition			<.001
No	91.1	81.9	
Yes, but it does not limit me	7.3	11.9	
Yes, and it limits me	1.6	6.2	
Emotional wellbeing (poor)	24.3	80.9	<.001
Any adverse childhood experience	57.3	89.1	<.001
Number of adverse childhood experiences			<.001
None	42.7	10.9	
One	29.4	22.5	
Two or three	18.8	34.3	
Four or more	9.1	32.3	
Self-esteem (poor)	11.3	65.7	<.001
Risk behaviors			
Current smoking (yes)	33.7	42.2	NS
Current drunkenness (yes)	34.7	44.5	<.05

	No (n=751)	Yes (n=446)	P-value
Current drugs (yes)	16.9	26.0	<.01
Has shoplifted (yes)	6.7	11.3	NS
Has been in a fight (yes)	11.8	9.6	NS
Have willfully destroyed something that did not belong to them (yes)	9.4	11.3	NS
Has used public transportation without a valid ticket (yes)	35.9	31.9	NS
Have you ever thought about suicide			<.001
No	62.3	17.6	
Yes	30.0	70.0	
I don't want to answer	7.7	12.4	
Have you ever attempted suicide			<.001
No	95.1	75.4	
Yes	3.6	17.2	
I don't want to answer	1.3	7.4	
How many times have you attempted suicide			<.01
Once	67.6	25.4	
Twice	13.6	26.7	
More than twice	18.8	47.8	
Whom do you turn to when you don't feel well emotionally			<.0001
Family member[1]	29.4	16.1	
Friends[2]	41.6	35.3	
Health or school professional[3]	3.1	13.8	
Nobody	25.9	34.8	
In the last 12 months, have you…			
Consulted your primary care provider			<.01
No	34.3	28.8	
Once or twice	44.3	35.7	
More than twice	17.6	28.8	
I don't know	3.8	6.7	
Consulted a mental health specialist			<.001
No	87.0	54.3	
Once or twice	2.0	9.9	
More than twice	10.3	34.5	
I don't know	0.7	1.2	
Consulted the emergency room			<.01
No	84.2	77.0	

	No (n=751)	Yes (n=446)	P-value
Once or twice	14.1	15.8	
More than twice	1.1	4.6	
I don't know	0.6	2.6	
Been hospitalized (at least one fortnight)			<.05
No	90.5	86.5	
Once or twice	8.3	9.3	
More than twice	0.8	3.9	
I don't know	0.4	0.3	

[1]Includes: parents, siblings and other family members; [2]Includes friends and boy/girlfriend; [3]Includes mental health specialist, other medical professionals, school staff

5 Discussion

The results of the study indicate that one third of 14-19-year-old respondents (33.4%) were depressed. This rate is almost ten times higher than the one found for 16-25 year-old Swiss males (depression: 3.6%, subthreshold depression: 3.6%)[25] and it almost doubles the one found among young adults in Switzerland (17.7%)[24]. Similarly, it is also twice the one reported in a multinational study of first year college students referred to a major depressive episode in the previous 12 months (18.5%)[18]. Likewise, it is three times higher than rates of major depressive episode among adolescents (aged 12-17, 11.3%) and young adults (aged 17-25, 9.6%) in the United States [2], and very different from the 2.2% rate for major depressive episode found among Dutch 19 year-olds[13]. A German study [11] among 11-17 year olds also found a lower rate of 11.1%. The rate found in our survey is even higher than the one reported in a meta-analysis of depressive symptoms during the pandemic, which reached 25.2% [48].

Another finding of the study is that a quarter of those who participated (24.7%) suffered moderate to severe anxiety. This rate almost doubles the one found among young adults in Switzerland (13.2%) [24], but is similar to the one reported in Germany among 14-21 year-olds (23.3%)[12]. Nevertheless, our result is also superior to the one among first year college students (16.7%) related to the last 12 months [18], and more than twice higher than the rate for any anxiety disorder found among Dutch 19 year-olds (10.6%) [13], which is similar to the one found in Germany among 11-17 year-olds (9.9%) [11]. This rate is even slightly higher when considering data for anxiety during the COVID period (20.5%) [48].

Globally, over one third of participants reported suffering from depression and/or anxiety. This combined prevalence is also higher than the one reported for anxiety, depression or attention deficit hyperactivity disorder (ADHD) among young adults in Switzerland (24.7%) [24]. The reported rate exceeds the one described among Canadian 16-20 year-olds (females: 18.3%; males: 10.5%)[1] or among US adolescents aged 12-17 years with epilepsy (14.6%)[49]. This finding is also higher than data indicating than one fourth of youth suffered from a mental health problem in the previous year[8]. However, a systematic review and meta-analysis reported a prevalence of common mental disorders between 25% and 31%, depending on the cut-off used, which is closer to our findings[6], while the international research among college students found a 12-month prevalence of 31.4% for any mental health disorder[18].

Overall, our results show prevalence rates that largely exceed those found in Switzerland to date. It is worth noting that 47% of our sample stated that their mental health was worse than before the pandemic. From this perspective, it could be assumed that the high mental health prevalence rates found in our research are influenced by it, as found in an Australian longitudinal study [50] revealing that the pandemic had an effect on the mental trajectories of young people, that showed higher scores on depression and anxiety. However, a Norwegian study[51] found that the increase in clinical levels of anxiety and depression between 2019 (pre-pandemic, 5.5%) and during the pandemic in 2020 (6.3%) among 13-16 year-olds could be explained by increase in age rather than pandemic-related measures. Another Norwegian study[52] found comparable results for mental health pre pandemic and during it except for those teenagers experiencing high pandemic-related

anxiety, who reported higher depression levels and poorer physical health. A third Norwegian study [53] reported that COVID-related lockdown impacted through a significant decrease in quality of life and life satisfaction in males and females and an increase in depressive symptoms only in females. Yet, a Swiss study among young adults[28] found almost no difference between pre-pandemic and pandemic prevalence rates for depression or anxiety. A report among Chinese undergraduate students found no deterioration of their mental health compared to pre pandemic results [54] . Finally, a meta-analysis including children and adolescents under the age of 18 during the pandemic found prevalence rates of 25% for depression and 20% for anxiety, which are below what we found probably because children were included [48].

All mental health indicators show worse results for females compared to males. This gender difference has already been described in previous research[6, 12, 15, 17, 18, 23, 31], although a German study[11] found higher rates among adolescent males. Nevertheless, this gender difference can be explained, at least partially, because males would tend to underreport internalized behaviors such as depression[55]. Additionally, youth identifying themselves as *other* gender were even more at risk for mental problems. This has been described both for non-heterosexual youths[18] and for sexual and gender minorities[29]. In addition to gender issues, participants screening positive for depression were significantly older. Previous research has already showed that the prevalence increases with age[2, 3], especially in the second decade of life[1].

As also described in the literature, adolescents with mental health issues are more likely to report family problems such as parents not living together[14, 18, 23]. There is research indicating that parental monitoring is a protective factor against mental health problems[15]. If we assume that monitoring is more difficult when parents do not live together, it could explain the higher rates found among non-intact families. This result is in the line of an Irish research proving an association between increased risk for mental health and low satisfaction with family life [23].

Interestingly, youths with anxiety were associated with a lower socioeconomic status but not those with depression. This result partially contradicts a systematic review [56] reporting that youth with low socioeconomic status presented higher prevalence rates of depression and anxiety. In the same line, a school-based study in England found an association between mental health issues and poverty[9] while one in Canada, stated that lower income was associated to poorer mental health[1]. However, a US-based study depicted that those with anxiety were less likely to be under the family poverty level and that there was no impact for those with depression[14]. Myrh et al.'s study concluded that young people in the lower socioeconomic categories showed more psychological distress during the pandemic [53].

Young people stating mental health issues are associated with worse academic performance and, for those in the depression range, with less satisfaction with work. A Swiss study among males [25] found similar results, as did an Irish report[23].

Our results also highlight that there is an association between poor mental and poor somatic health, as already depicted in the literature[14, 15]. Similarly, youths with chronic conditions are likewise more prone to mental health problems. An English report already showed that having special education needs was related to mental health problems[9], while another one informed that adolescents with disabilities showed higher rates of emotional difficulties[31]. Moreover, among youth with epilepsy,

those with low income or whose specialist care needs were not met were more likely to be depressed, but low-income ones were also less likely to be anxious, independently of age, gender or disease severity[49].

Although expected, the association between mental health disorders and suicide ideation and attempts is important. Among those stating depression and/or anxiety, 70% report suicide ideation, 17% suicide attempt and, among the latter, 48% more than 2 attempts. Although the suicide ideation rate almost doubles the one reported among young adults in Switzerland with anxiety, depression or ADHD (38.6%), suicide attempts are only slightly higher (13%) [24]. The difference with suicide ideation can be explained because in Werlen et al. study [24] it refers to the previous 2 weeks, while in this study suicide ideation refers to lifetime. An Irish paper[23] informed that, among 13-18 year-olds, 36% had suicide thoughts and 2.4% attempts in the previous 12 months. Suicide attempt was also found higher among adolescents with a mental health disorder in England[3].

There is an association between poor mental health and substance use, mainly alcohol misuse (drunkenness) and the use of cannabis and other drugs. This association has been portrayed in the literature[15]. However, as it is a cross-sectional survey, we are unable to know whether substance use is the cause or the consequence of poor mental health. Nonetheless, an English study[3] also found an association between mental health disorder and the use of tobacco, alcohol and illegal drugs.

Mental health problems are highly associated with adverse childhood experiences in our study, as already pointed out in the literature[57]. Overall, 69% of participants in the study had suffered from at least one adverse childhood experience (ACE), with having experienced harassment or bullying at school being, by far, the most often cited. These rates increase dramatically among young people with mental health issues, reaching 89% of those within the depression and/or anxiety range. The association between ACEs and depression, anxiety and other mental health diagnoses has already been reported in the literature[35, 58]. Moreover, we found that one third of those screened for depression and/or anxiety described four or more ACEs. A US-based study[36] found an association between mental health diagnoses and ACEs, especially when young people were exposed to four or more of them.

Our research indicates that only 35% to 40% of those in the pathological range for mental health had consulted a mental health professional more than twice (to be considered as a sustained therapy) in the previous 12 months. This result is similar to the ones found by Mojtabai et al. (42%)[2] or Niermann et al.[12] (39.1%). Still, a US research indicated that, among 12-17 year-olds, 79% of those with depression and 64% of those with anxiety had received treatment in the past 3 months[14], while another one among 12-18 year-olds reported that almost half of those screening positive for a mental health problem had received mental health services in the past 3 months[15]. In England[3], two-thirds of 5-19 year-olds with an emotional disorder had contact with professional services in the last year, mainly with teachers (48.5%), with mental health specialists (25.2%) being less often cited than primary care providers (33.4%). Moreover, an Australian study concluded that almost all adolescents sought some kind of help, whether formal or informal[39]. However, although the public attitudes towards mental health professionals and treatment have improved[59], the literature reveals that help-seeking is rarer when there is an stigmatizing attitude towards mental health[60].

It is worth noting that friends are who participants turn to most often when in emotional distress, but that one third of them (in the case of depression and/or anxiety) turn to nobody. Furthermore, those who turn to health or school professionals are very few, around 13.8%. An Australian study [39] among 14-15 year-olds found that friends and family were the most sought for help, and that health professionals were more rarely cited. However, only 2.7% of them indicated that they sought help from no one.

5.1 Limitations

The present study is cross-sectional and causality cannot be assumed. Although we weighted for specific characteristics of the sample to make it as close as possible to the population, a self-selection by respondents cannot be ruled out. The questionnaire was self-administered and social desirability in answering the questions cannot be excluded. However, the fact that the questionnaire was anonymous should minimize it. We used screening scales to measure mental health, not clinical ones. This implies that our results identify individuals at risk for mental disorders but cannot confirm diagnosis.

6 Conclusions

Mental health problems affect around one third of 14-19 year-olds in Switzerland and Liechtenstein. Although the current pandemic has most probably played a role in it, this prevalence rate is much higher (or at least in the upper range) compared to other studies performed in similar populations, both in Switzerland and elsewhere.

It is however quite disturbing that, in spite of the high reported prevalence, those consulting a mental health provider continue to be a minority, with less than half of those screened as depressed and/or anxious having consulted a mental health professional in the year previous to the survey. Moreover, turning to nobody when emotionally unstable shows a high prevalence among them. Although the stigmatization often associated with mental health care can explain part of these results, it cannot be excluded that these are young people who do not receive treatment because they are not detected.

There are subgroups of young people that seem to be at increased risk of mental health problems. These include, among others, those with difficult family situations, those with lower socioeconomic status, those having suffered from childhood adverse experiences, and those suffering from chronic conditions. Even though all adolescents should be routinely screened for mental disorders, these subgroups should be specifically targeted.

Comorbidity is high among young people with mental health issues. They are more likely to report a low emotional well-being, and lower self-esteem. Similarly, they also state a poorer physical health. All these situations should be considered as red flags to further screen them.

Mental health is associated with risk behaviors, especially with substance use. Whether it is the cause or the consequence cannot be established with the cross-sectional design used in this research. Nevertheless, when substance use or mental disorders are found through anamnesis or screening, the other one should also be sought.

7 Recommendations

7.1 Early detection

Cases of adult mental health disorders often start in adolescence and go undetected. Screening needs to be done to all young people through primary care providers to permit early detection and treatment. School staff has also an important detection role to play.

Males are underrepresented in mental health in the sense that they tend to report lower prevalence rates than females. As it could be that males tend to underreport this kind of situations, efforts to make sure that they are emotionally sound should be systematic.

Mental health prevention programs must be put in place at an early age. Such programs should be multilevel and, apart from health professionals, include the adults surrounding young people such as their parents, teachers, sport coaches, etc.

7.2 Mental health services

Mental health services adapted to young people's needs must be created with sufficient capacity to absorb the demand and avoid delays in management and treatment. Such services need to include transition programs to adult care in order to avoid discontinuity of care. Moreover, such services should be able to adapt with minimal delay to particular circumstances, such as the one due to the COVID-19 pandemic, as it is when they are exceptionally needed.

7.3 A broader approach

Mental health services need to be destigmatized and be seen as any other medical specialty that can improve the health of the population. A specific effort in this sense through health education needs to be done.

Speaking spaces must be set up and easily accessible for the most vulnerable, but also for all young people, even if at first glance they seem to have all the necessary resources. Every young person should feel legitimate to ask for help regardless of the severity of his or her condition and situation. As the Internet is an important place to seek help for adolescents because of its easy access and usually no cost, such platforms need to be developed and adolescent health literacy improved in this sense. In addition, there is a need to promote the already existing tools with massive communication and dissemination.

A lot of mental health awareness work is needed. This awareness must target young people but also the entire population. As the COVID-19 pandemic has highlighted the mental health needs of the youth population, it seems appropriate to take advantage of this situation. Primary prevention

therefore appears necessary in order to define what mental health is, how to express one's emotions and feelings, and to destigmatize mental health issues. Schools seem to be an adequate ground for integrating this theme and making it less taboo.

7.4 Regular monitoring

The results of this study are most probably influenced by the current pandemic. New surveys should be done at regular intervals to assess the mental health of young people under a more normal situation and to assess its evolution over time, especially during the post-pandemic era.

Although we know the percentage and, to a certain extent, the frequency of health services' use, it would be important to study how these services (specially mental health ones) are used and how young people think they could be improved.

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