

# Suicide and suicide attempt rates among children and youth in Europe in the context of the COVID-19 pandemic

## Statystyki samobójstw i prób samobójczych wśród dzieci i młodzieży w Europie w relacji do pandemii COVID-19

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### Abstract

**Introduction and aim:** Suicide, the act of taking one's own life, represents the most final decision a person can make. When this type of decision involves an adolescent or a child, people are often left questioning what led to it. The visibly increasing number of suicides in Poland in last years, especially among individuals as young as 12, motivated the authors to take a look at the current state of knowledge about young people's mental health. The authors investigated whether the COVID-19 pandemic and its aftermath had a particularly strong impact on young people's lives and what imprint it has left on their mental well-being. Another aim of this work was to summarise possible factors related to the pandemic that could have had a negative or positive influence on minors' mental state and health, with a specific focus on Europe. **Materials and methods:** PubMed and Google Scholar literature search, and Google-based research. **Results:** The review presents statistics on suicides and suicide attempts in various European countries, and analyses possible reasons, including mental disorders and the impact of home confinement caused by the pandemic. **Conclusion:** It can be presumed that the pandemic had a negative impact on young people's mental state. However, the overall outcomes are in correlation with pre-existing family and peer relationships, abusive environments, and problems that developed before the pandemic, as well as mental disorders. Also, the quality of mental health support systems varies between countries, making it difficult to generalise the findings.

**Keywords:** children, adolescents, suicide, suicide attempt, COVID-19

### Streszczenie

**Wprowadzenie:** Samobójstwo to najbardziej ostateczna decyzja, jaką osoba może podjąć. Gdy taka sytuacja dotyczy nastolatka lub dziecka, ludzie szczególnie zastanawiają się, co mogło ją spowodować. Wzrost liczby samobójstw w Polsce w ostatnich latach, zwłaszcza wśród osób tak młodych jak 12-letnie dzieci, skłonił autorów do przyjrzenia się obecnej wiedzy na temat zdrowia psychicznego młodych ludzi. Autorzy badali, czy COVID-19 i jego następstwa w sposób szczególnie przełożyły się na życie, a także psychiczne samopoczucie dzieci i młodzieży. Kolejnym celem pracy było podsumowanie możliwych czynników związanych z pandemią, które mogłyby mieć negatywny lub pozytywny wpływ na stan psychiczny i zdrowie nieletnich. Autorzy skupili się na Europie. **Materiał i metody:** Przeszukano bazę PubMed i Google Scholar oraz platformę Google celem zaznajomienia się z dostępnymi statystykami prób samobójczych i samobójstw wśród dzieci i młodzieży. **Wyniki:** Przegląd przedstawia statystyki dotyczące samobójstw i prób samobójczych w różnych krajach europejskich oraz analizuje możliwe przyczyny uzyskanych wyników, w tym zaburzenia psychiczne i izolację domową spowodowaną pandemią. **Wnioski:** Można przypuszczać, że pandemia miała negatywny wpływ na stan psychiczny młodych ludzi, ale ogólne wyniki korelują z początkowymi relacjami rodzinnymi-towarzyskimi, przemocowym środowiskiem i problemami, które występowały przed pandemią, a także zaburzeniami psychicznymi. Ponadto jakość systemów wsparcia zdrowia psychicznego różni się w poszczególnych krajach, więc niemożliwe jest uogólnienie zebranych informacji.

**Słowa kluczowe:** dzieci, młodzież, samobójstwo, próba samobójcza, COVID-19

## INTRODUCTION

COVID-19 is a severe acute respiratory syndrome caused by SARS-CoV-2. March 2020 marked the beginning of the global pandemic. Before the vaccine was developed, to minimise the spreading of the potentially deadly virus, authorities imposed lockdowns in most countries. Schools were closed, and citizens were confined to their homes. Going out was limited as public gathering places were closed, and everyone was required to wear face masks. Because of online schooling, teachers lost track of troubled students, and many of those who were previously in good mental health became depressed. The world was concerned about the rising death toll from COVID-19 infections and people losing their jobs. Many overlooked those who do not yet know how to deal with their emotions – children and adolescents. The statistics compiled by the authors show no clear trends regarding changes in suicide rates among children, and data vary between countries. However, one needs to think about the unavoidable aftermath of the pandemic, and how children and young people had to cope with homeschooling and then returning to schools. Some felt better at home confinement, for example because they were safe from bullies, but later struggled with confronting them again upon returning to school. On the other hand, some children ended up being in a lockdown at home with abusive parents, and lacked emotional support in that difficult situation.

There was a visible increase in the number of suicides among young people in Poland during and after the COVID-19 pandemic (Bridge et al., 2023). This, along with the widespread home confinement that occurred in 2020, prompted

the authors of this review to take a look at the possible effects of isolation on the mental health of children and adolescents. Researchers have already pointed out increased symptoms of depression and anxiety symptoms among adolescents caused by the pandemic (Hawes et al., 2022). The authors believe it is crucial to continue raising awareness about depression, a potentially deadly disorder affecting younger and younger individuals. Although there is limited material and information about the mental health of children and adolescents. However, it should be monitored, with necessary steps taken to improve their well-being. That is why also the authors took a closer look at the possible causes of depression among children and adolescents.

## MATERIALS AND METHODS

In June 2023, two independent researchers performed a literature review. The authors searched through the electronic databases PubMed and Google Scholar. These databases were chosen to access the most widely available journals and search engines. No types of articles were excluded. No particular language was set. The keywords used were: suicides AND children OR youth OR adolescent AND COVID-19 OR COVID-19 pandemic OR coronavirus pandemic AND depression OR schizophrenia OR anxiety or mental disorders. Additional works were included in the review from other sources, such as citation searches and websites. Data were gathered details are shown in Fig. 1.

Inclusion criteria:

1. statistics on suicides and attempted suicides among children and youth before, during, and after the COVID-19 pandemic;

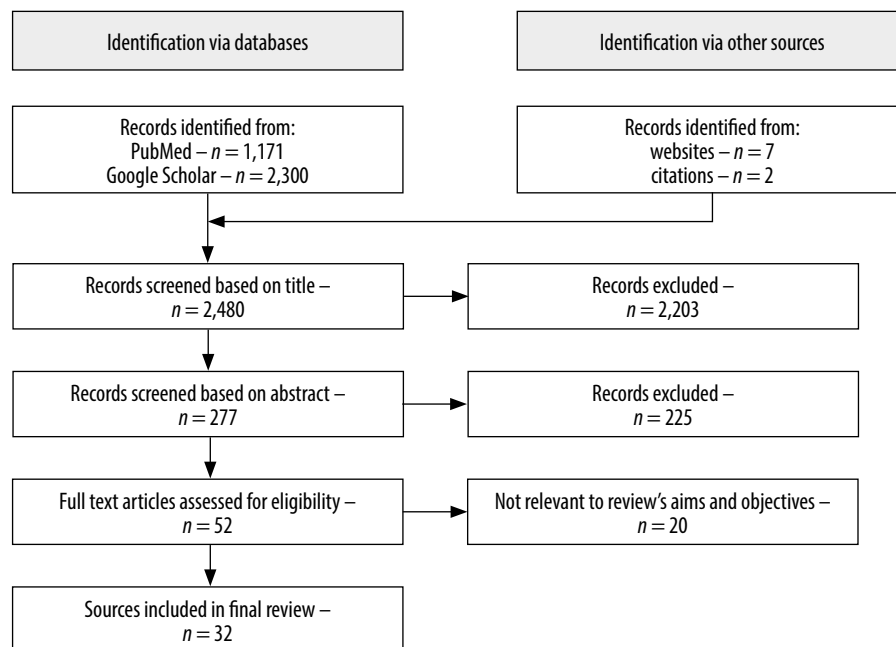


Fig. 1. PRISMA flow diagram

2. articles about the mental health of children and youth during and post the COVID-19 pandemic;
3. articles on possible reasons for changes (improvement or decline) in the mental health of children and youth;
4. articles on depression among children and youth;
5. articles on mental disorders among children and youth;
6. research regarding the European population.

Exclusion criteria:

1. articles focused on adults only;
2. articles on mental health based on data only from 10 years ago or more;
3. articles focused only on depression;
4. articles focused only on the pandemic, without the mental health impact;
5. research on non-European populations.

No restrictions for the particular sex of individuals described in the works were set. Thirty-three sources were included, along with online pages.

## DISCUSSION

### Statistics

#### Mental health during the COVID-19 pandemic

To begin with, more than 700,000 people die due by suicide every year, and suicide is the fourth leading cause of death among 15–29-year-olds (World Health Organization, 2023). Most studies designed to show the impact of the COVID-19 pandemic on mental health focused on adults. Nevertheless, statistics indicate that many respondents in the available research (adolescents, but also their parents and teachers) noticed that their mental well-being was worse than it had been prior to the COVID-19 pandemic (Śniadach et al., 2021). Śniadach et al. (2021) summarised that about 10% of the surveyed young people showed symptoms of depression, including 9% feeling sad all the time, 10% feeling lonely and depressed all the time, and 9% admitting that they wanted to cry all the time. Some adolescents were also diagnosed with PTSD or had psychosomatic symptoms and psychological distress, as well as insomnia, boredom, worry, and helplessness during and after the pandemic (Meherali et al., 2021). Meherali et al. (2021) also compiled works claiming that anxiety and depression symptoms were significantly more visible in adolescents than in children. Comparing to pre-pandemic era deaths by suicide, more suicides during the COVID-19 pandemic occurred among males, preteens aged 5–12 years, and young adults aged 18–24 years (Nationwide Children's, 2023). It is important to note that despite the low rate of COVID-19 infection among youth, the stress they faced made their condition highly vulnerable (Meherali et al., 2021).

#### The United Kingdom

In England and Wales, the suicide rates in groups aged 10–14, 15–19, and 20–24 in 2020 were lower than in 2019, but increased to even higher levels in 2021, then decreased in 2022, but remained slightly higher than in 2020 (Office for National Statistics, 2023).

#### France

According to Santi (2022), the analysed rate in France was higher in 2022 than in 2021, and in 2021 it was higher than in 2020, especially among young females. Also, Santé Publique France noted an increase in the number of adolescents hospitalised for suicide attempts, with a 27% increase from the end of 2020 compared to 2019, with young girls being significantly in the majority (Santi, 2022).

#### Poland

In Poland, a record number of suicide attempts by children was noted in 2022. That year, a total of 2,093 suicide attempts among children and adolescents were recorded in Poland, with 85 in group aged 7–12 and 2,008 in the age group 13–18. One hundred and fifty-six of those attempts resulted in death, according to police data. More precisely, there were six suicides in the group of children aged 7–12, and 150 in the 13–18 age group. The result was higher than the 1,496 attempts in 2021 and less than 750 in 2020. Over the last five years, the number of suicide attempts among minors in Poland has more than doubled, with the most significant increases occurring in 2021 and 2022, as shown in the data shared by the Polish police (Statystyka – Policja, 2024).

#### Possible differences between countries

Experts have pointed to several reasons behind the record suicide attempt rate among Polish children, including an underfunded, overstretched, and outdated mental health support system, and the lack of psychiatric support during the pandemic (Ptak, 2022). Some parameters indicate that mental healthcare is more advanced in France and Great Britain than in Poland. According to a dataset from 2016, the number of psychiatrists per 100,000 residents was significantly greater in these countries than in Poland. These nations also spend much more financial resources on healthcare per patient (Kancelaria Senatu, 2019). Differences in the quality of mental health support may explain why adolescents in various regions of Europe cope better or worse with problems in a broad sense.

#### Suicide attempts and suicidal behaviours

It is worth mentioning not only statistics on committed suicides among children but also those for suicide attempts and suicidal behaviours, as they reflect the general mental state of minors. Some researchers point out that these dangerous incidents were reported more frequently during the COVID-19 pandemic than before, which could be related to psychosocial stressors. The SARS-CoV2 infection itself and its organic aftereffects may have a prominent impact as well (Grzejszczak et al., 2023).

#### Spain

Gracia et al. (2021) compared suicide attempt rates in one Spanish region during two time periods: from March 2019 to March 2020 and from March 2020 to March 2021. The number of suicide attempts was 552 and 690, respectively,

which shows a significant rise in the first pandemic year. Interestingly, the research indicated that this increase in suicide attempts affected more girls than boys (Gracia et al., 2021).

### Slovenia

Slovenian children also seem to have experienced a decline in mental well-being. In 2022, researchers performed a study to determine if COVID-19 and lockdowns influenced the number of suicide attempts among children. Medical record analysis proved that this number increased in specific months during the years 2019, 2020, and 2021 (Kirič et al., 2022).

### Risk factors of suicide and suicide attempts in the context of the COVID-19 pandemic

Certain medical and psychosocial factors are known to increase the risk of suicidal behaviours, including the female sex, depressive/anxiety disorder, being a victim of bullying, absence of a parent, unsafe environment, low income, and excessive time spent on the Internet (Grzejszczak et al., 2023). On the other hand, some variables, such as good family communication, strong family relationships, and a sense of belonging, can have a protective influence against suicidal behaviours. During the pandemic, children and adolescents were more exposed to certain stressors. As an example, lockdowns entailed isolation from peer groups and forced minors to spend more time at home with close family. Therefore, some of the minors' needs could have been repressed, and more stressors affected them during that time. Some researchers confirm that those factors had a negative impact on the mental well-being of children and their tendency toward suicidal behaviours, as discussed below.

## Online schooling

### Isolation

During home confinement, many students reported feeling isolated from their friends and extended family, with social isolation being one of their main concerns. The fact of being isolated and not being able to express their feelings at school made many young people lonely and lost. Teachers claimed that they had little to no control over some children, as they had to conduct online lessons rather than providing the guidance during traditional in-person classes (Selvaraj et al., 2021). They did not see their pupils, so they could not monitor their behaviour. Importantly, there are studies asserting the need for instant feedback during live broadcast to improve students' performance (Yao et al., 2020). By not meeting students personally, teachers' roles in promoting well-being and the importance of mental health were reduced. They could not ensure that every single student was paying attention during online lessons (Selvaraj et al., 2021). The lack of in-person meetings also took away the chance of talking in private about difficult situations.

Another important factor to consider is the fact that some students still do not have Internet access, which left them not only isolated, but possibly behind their peers, during the pandemic.

### Lack of physical activity

Another important factor contributing to the decline in mental health during home confinement might be the role that physical activity plays in preventing many mental disorders (Pearce et al., 2022). Researchers highlight the substantial mental health benefits that individuals can gain from physical activity, even at levels below the common public health recommendations. Some studies suggest that 1 in 9 cases of depression might have been prevented if everyone in the population was active at the currently recommended level. Sadly, during the COVID-19 pandemic, not only physical education at school became impossible, but also most gyms were closed. As a result, most people, including children and teens, had no opportunity to reach the recommended levels of physical activity (Viner et al., 2022). Not every child has the space at home to exercise, and most likely lacked the motivation they typically receive at school. Later on, it caused weight gain among many young people, negatively affecting their self-perception and self-acceptance. This, in turn, might have worsened their mental health state in addition to worse physical condition. There are no clear statistics about being bullied at school, as many cases remain unreported or ignored. However, there is a risk that the number of children being bullied because of their appearance increased after the lockdowns.

### Time spent in front of screens

Another important feature of online schooling was the large amount of time children and adolescents would spend in front of screens (Viner et al., 2022). In 2022, Viner et al. gathered data showing an increase in daily screen time by as much as 296% during the first wave of COVID-19. Adolescents were constantly using computers to participate in their lessons, and stayed on their smartphones to keep in touch with one another. The studies did not differentiate between screen time for recreation and online lessons. Nonetheless, Viner et al. in their work analysed studies that confirmed an increase in both screen time overall and in social media use during weekdays. In many cases, an increased time spent in front of screens might have led to the development of computer, phone or Internet addiction. It may cause acts of aggression and poor mental health outcomes (Jones et al., 2021). The Internet and phone addictions are common issues among youth, and the COVID-19 pandemic presumably worsened the trend.

## Mental disorders

This section identifies mental disorders, which play a major role in suicide attempts and can even be considered direct causes of suicide (Bąbik and Olejniczak, 2014). During the COVID-19 pandemic, access to medical help, including psychiatrists and psychologists, was sometimes limited,

potentially leading to a deterioration in the mental state of many people.

### Depression

Depression is the most common reason for suicide attempts. Although scientists have yet to identify a specific cause, we know it can be either endogenous or exogenous. Endogenous depression may result from factors such as genetic or biological predisposition, as well as a family history (Arzt, 2023). Exogenous depression, known as situational depression, is caused by stressful situations. These could be, for instance, the death of a family member, or a serious illness. These situations were common during the pandemic and had a negative impact on the mental health of many individuals, especially children and youth.

Another important facet that often correlates with depression is anxiety. Many people might have begun to experience anxiety symptoms over the health and lives of themselves, their relatives, and their friends.

### Schizophrenia

It is also necessary to mention schizophrenia. When schizophrenia occurs at a young age, it is referred to as “early-onset schizophrenia”, “adolescent-onset schizophrenia” or “childhood-onset schizophrenia” (when symptoms start to develop under the age of 13). Child schizophrenia tends to develop gradually, and usually does not have a sudden onset (Petlovanyi and Tsarkov, 2020). In their study about suicides in schizophrenia, Sher and Kahn (2019) summarised that the negativity experienced by youth may contribute to the pathophysiology of psychotic disorders and suicidal behaviours. However, some studies include findings suggesting that schizophrenia accounts for very few suicides among children and adolescents (Bilsen, 2018). Individuals with schizophrenia spectrum psychosis with suicidal thoughts had a significant increase in suicide risk (Chapman et al., 2015). Nevertheless, it needs to be pointed out that this study put its focus on adults. At the same time, according to other research, suicide is the main cause of premature death among individuals with psychotic disorders (Barbeito et al., 2021). Researchers have also noted that the risk is higher in adolescents.

### Bipolar disorder

Studies also confirm that bipolar disorder is associated with a high risk of suicide (Simon et al., 2007). In the paediatric population, mixed episodes in bipolar disorder are more frequent than among adults. These episodes also link with a higher risk of suicide attempts.

### Mental disorders – conclusion

Some authors (Sanchez-Gistau et al., 2015) concluded that individuals with mania-associated disorders showing depressive symptoms are more likely to engage in suicidal acts. They also noted that young-onset mental disorders tend to present with more severe abnormalities than those found in

adults. Particularly childhood-onset mania has more severe outcomes than when it occurs in adolescence. Although it happens less often, there is a concern that children might be left misdiagnosed. Cichoń et al. (2020) agreed that this type of diagnosis in children and youth is often delayed, and consequently treatment is inappropriate or provided too late. They summarised that early-onset bipolar disorder is linked with a higher rate of suicide and suicide attempts in both adolescent and child groups (Cichoń et al., 2020). In conclusion, Li et al. (2022) highlighted that individuals with severe mental disorders are more likely to attempt or commit a suicide than those with no psychiatric disorders. They concluded that the pandemic caused a rise in telepsychiatry, which is not as effective as in-person consultations, especially that many individuals do not have the required devices. Also, the pandemic worsened the mental well-being of mental health professionals, which in turn resulted in suboptimal care for individuals with mental disorders. Overall, their findings demonstrated that the pandemic caused an elevated level of suicidality among individuals with severe mental disorders, especially in patients with bipolar disorder. The additional risk factors mentioned by them included cyberbullying of youth with mental disorders, younger age, and depressive symptoms. They emphasised the importance of suicide screening among individuals with schizophrenia and bipolar disorder, even if they are clinically stable (Li et al., 2022).

## Sexuality

Having considered mental disorders, the focus will now shift to sexuality. It plays an important role in young people's lives and, therefore, it can have an impact on their mental health.

### Isolation of LGBTQ youth

Jones et al. (2021) gathered information indicating that most adolescents identifying as LGBTQ (lesbian, gay, bisexual, transgender and queer) had difficulty maintaining good mental health due to being forced to stay at home. It often caused confinement with unsupportive family members and lack of socialisation, which is crucial for helping them navigate their identity (Jones et al., 2021). We live in a world where LGBTQ organisations spread more and more, assisting children in coping with their sexuality. However, discrimination does not decrease, leaving many LGBTQ adolescents suffering because of the public's attitude towards them. LGBTQ individuals often rely on the support of the LGBTQ society. Consequently, the closure of many public spaces, including LGBT centres, restricted access to specialised healthcare services tailored to the needs of the LGBT community. Also, many LGBT community events and gatherings were cancelled or transferred to virtual platforms. For some individuals, participation in such events was crucial, and their cancellation may have led to feelings of isolation and loneliness. Access to psychological therapy was limited, and some LGBT individuals likely avoided mental health services due to concerns about stigma.

However, an interesting fact is that in 2021 the suicide attempt rate decreased among the LGBTQ+ student community in comparison to 2018 (Gill and McQuillan, 2022). According to Gill and McQuillan (2022), this might suggest that many of them actually felt relief from being isolated from the unsupportive and often harmful school environment. While they point out the high rate of emotional distress caused by an unsupportive family setting, they also note that in 2019 over 80% of LGBTQ+ students suffered bullying and harassment at school. This proves that a lack of acceptance often comes from both peers and family members. It also highlights the necessity of improving the mental health support system in schools for adolescents, especially for the LGBTQ+ community. Despite the decreased suicide attempt rate, it is important to remember that LGBTQ+ students are more likely to attempt suicide than their cisgender and heterosexual peers.

### Transgender children

In addition, it is important to consider transgender children. Those who feel that their gender identity differs from that typically associated with the sex they were assigned at birth are more likely to experience anxiety and depression, and to be rejected by unsupportive family members. The COVID-19 pandemic put a strain on transgender children and youth, with the rates of anxiety and depression increasing, and greater exposure to unaccepting home environments. It also resulted in, as mentioned above, lower access to medical and mental health services (Ehrensaft, 2021).

### Possible solutions

To sum up, it is essential to remember that the final consequences of the COVID-19 pandemic might yet to be revealed. Definitely, more research is needed, as issues like cognitive fog following COVID-19 infection remain unexplored. Clearly, to solve some of the problems mentioned above, expanded psychological and psychiatric help should be accessible for children and youth. Greater awareness should be raised for LGBTQ adolescents and young people with mental illnesses. Also, it is worth noting that a less overwhelmed health care system with greater resources could presumably result in less suicidal behaviours, including those among children and youth.

### CONCLUSION

The main limitation of this work is the lack of data stratifying adults from children and adolescents in most reviewed

studies (Pirkis et al., 2021). Bąbik and Olejniczak (2014) from the Polish Association of Suicidology claim that children and adolescents do not make conscious decisions about taking their lives. They point this out as the main difference between adults and children. They also highlight that young people often want to bring attention to themselves rather than end their lives. The COVID-19 pandemic made the problems of children and young adults even worse. Interestingly, during the first months of the pandemic, there was no increase in the number of suicides (Pirkis et al., 2021). This changed with prolonged home confinement and after the COVID-19 pandemic (Office for National Statistics, 2023; Ptak, 2022; Santi, 2022). The authorities introduced online schooling, which led to isolation. For some children and adolescents, this meant spending more time in an abusive environment, as well as more screen time for all youth. At the same time, returning to school meant for some the sudden necessity of facing their bullies again. The increasing suicide rates among children and adolescents show that the reasons why young people decide to take their own lives remain insufficiently understood. Definitely, both direct and indirect reasons for suicide (Bąbik and Olejniczak, 2014) were highlighted during the COVID-19 pandemic. It is still unclear how to reach and help all those in need. Overall, the mental state of young people could have changed because of the mentioned risk factors. The level of stress caused by the pandemic correlated with pre-existing family and peer groups relations, as well as prior problems. In some countries, better mental health support systems are needed, as psychiatric care was visibly lacking during the pandemic. Special attention should be given to monitoring the mental state of the youngest individuals, because their diagnosis of mental disorders tend to be delayed. The sooner treatment is provided, the greater the chances of preventing suicidal behaviours.

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### Author contribution

*Original concept of study; critical review of manuscript; final approval of manuscript: JP. Collection, recording and/or compilation of data; analysis and interpretation of data: KKL. Writing of manuscript: JL, KKL.*

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