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Analysis of adolescents' views on the role of vaccination and limitations in psychosocial functioning during the COVID-19 pandemic

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Abstract

Background.

The COVID-19 pandemic has forced entering numerous changes and restrictions on daily psychosocial functioning.

The purpose of our research was to explore the views of adolescents aged 14-20 years attending secondary schools on the role of vaccination and the restrictions put in place during the COVID-19 pandemic.

Material and methods. The study was conducted with 504 secondary school students in a small town in Poland. Students were aged between 14 and 20 years ($M = 16.6$, $SD = 1.3$). The groups were homogeneous in terms of age and gender. 250 males ($M = 16.5$; $SD = 1.3$) and 254 females ($M = 16.7$; $SD = 1.4$) completed the sheets. The survey took place between January 7 and 11, 2022. The study used the author's "Pandemic and My Life" survey method. It contained 7 closed-ended questions covering adolescents' attitudes towards COVID-19.

Results. More than half of the students have been vaccinated against COVID-19, and they are convinced of the effectiveness of the vaccines. Females were more likely to reveal anxiety before infection. Despite the presence of the COVID-19 virus in many families' homes, concerns about infection were rather small. A great number of the respondents assessed restrictions as "more burdensome than beneficial". Males were more prone to accepting distant education. There was a relationship between students' fear of the COVID-19 infection and the anxiety observed by pupils in their families.

Conclusions. The majority of the adolescents surveyed have been vaccinated against COVID-19 and have positive opinions about the effectiveness of the vaccines. There is a strong polarisation of views on some issues. The results obtained can be helpful in building preventive programmes and shaping pupils' health-promoting attitudes.

Keywords: COVID-19 pandemic; anxiety; vaccines; mental health promotion; distance education, online learning

Introduction

The pandemic of coronavirus, the disease that causes acute severe respiratory distress syndrome, emerged in Wuhan before the end of 2019 [1]. The disease spread rapidly around the world, and the threat of the disease and its effects prompted the introduction of various restrictions and limitations on community life. There have been announcements reporting statistics on the number of new infections, the number of people who have been vaccinated, and those who have lost their battle against the disease. The changes introduced in everyday life, related to lockdown and the popular "stay at home" slogan, among others, evoked different opinions and emotions in social settings. The threat of the pandemic generated fear and anxiety and, in relation to schoolchildren and adolescents, also necessitated changes in the organisation of the teaching process (online, stationary or hybrid learning mode), and restriction of the scope of individual mobility and interpersonal contacts (enforced home isolation). Such changes, which are widespread in society, have the character of strong stressors, which differentially induce disorders in individuals. This variation depends on stress resistance, which is gradable and one dimension of human characteristics.

Since the beginning of the COVID-19 pandemic, a number of studies have been reported in different populations around the world indicating an increase in symptoms related to stress, depression, anxiety disorders, and other negative symptoms [2-5]. Data was also presented that revealed specific populations and occupations with a higher risk of experiencing stronger negative emotional symptoms. Females, those studying and experiencing health issues, and young adults were the most common [6,7].

Such risks of a "social problem" nature prompt the search for remedies to mitigate the negative effects of adverse changes. It should be particularly important to pay attention to groups that are inherently weaker and more sensitive to environmental cues, such as the elderly, single people, or children and young people. In order to undertake appropriate support strategies targeted at a specific group of students, a thorough diagnosis is needed, including the students' psychological state, level of coping with stress, or the influence of the family environment on their functioning; opinions about their life in the COVID-19 pandemic should also be known. This paper covers only the latter strand, and therefore focuses on young people's attitudes about the many changes in psychosocial functioning that occurred during the COVID-19 pandemic; we consider these to be important in terms of their inclusion in a broader perspective and therefore in the context of a holistic diagnosis.

The purpose of the study

The aim of this study was to explore the views of adolescents aged 14-20 years attending secondary schools on the role of vaccination and the restrictions put in place during the COVID-19 pandemic. It was decided to test whether the opinions expressed by them were significantly differentiated by gender.

An attempt was made to answer the following questions:

1. What are students' attitudes towards COVID-19 vaccination?
2. What do students think about the effectiveness of COVID-19 vaccines?
3. Are students afraid of being infected with the COVID-19 virus?
4. Is there a fear of being infected with this virus in the student's family environment?
5. What percentage of students' family members or relatives have been infected with the COVID-19 virus?
6. What do students think about the changes in teaching due to the current COVID-19 pandemic?
7. What are students' attitudes towards the orders and restrictions put in place during the COVID-19 pandemic?
8. Is there a correlation between pupils' fears of contracting the virus and those of their family members or relatives?

Due to the exploratory nature of the research, no hypotheses were set. It was assumed that the results obtained would form the basis for constructing or modifying health education programmes in the schools that were the study area.

Material and Methods

Participants, Study Design and Data Collection

The study was conducted with 504 secondary school students in a small town in Poland. Students were aged between 14 and 20 years; mean \pm standard deviation (SD) = 16.6 \pm 1.3 years. Students were included in the study if they gave their consent and fully completed the questionnaire using a Google form. The groups were homogeneous in terms of age and gender. 250 males (M = 16.5; SD = 1.3) and 254 females (M = 16.7; SD = 1.4) completed the sheets. The survey was conducted between January 7 and 11, 2022, during parenting lessons taught by teachers in a residential study setting. Study participants were guaranteed anonymity and confidentiality of data.

Measures

The study used the author's "Pandemic and My Life" survey method. It contained 7 closed-ended questions covering adolescents' attitudes towards COVID-19 vaccination, opinions on the vaccines available in Poland, their attitudes towards the restrictions and injunctions introduced by the government, their own fears and fears of loved ones of being infected, their awareness of the presence of contagion by those around them, and their evaluation of the teaching changes introduced.

The survey also included metric questions including age, gender, school grade, and school type. In addition to the survey, a number of validated psychometric scales were used, which will be the subject of other analyses.

Statistical analysis

The data was processed with the Microsoft Excel 2020 spreadsheet and analysed with the Jamovi package [8]. The chi-square test of independence was used in the analysis of nominal variables. The strength of the relationship between qualitative variables was determined using Pearson's contingency coefficient and Cramer's coefficient V. The closer is to 1, the stronger the positive correlation is [9]. The results of all answers were considered significant at $p < 0.05$.

Results

Attitudes of students towards vaccination against Covid-19

Table 1 shows the respondents' answers to the first research question. We can see that more than half of the students have been vaccinated against COVID-19 of their own free will, while almost a quarter do not want to be vaccinated. There were similar percentages of those declaring that they would be vaccinated in the future and that they would be vaccinated under pressure from their parents or others in their immediate environment (cf. Table 1).

Table 1

What is your attitude towards vaccination against COVID-19? (N = 504)

Levels	Counts	% of Total	Cumulative %
I do not want to be vaccinated	121	24.0 %	24.0 %
I will vaccinate in the future	63	12.5 %	36.5 %
I vaccinated under pressure (parents, guardians, others)	61	12.1 %	48.6 %
I have been vaccinated of my own free will	259	51.4 %	100.0 %

The results obtained, taking into account the number of students and their attitudes towards undergoing COVID-19 vaccination, are shown in Figure 1.

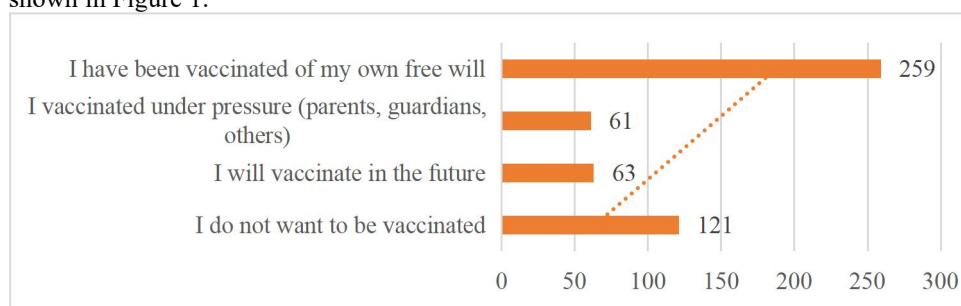


Figure 1. The number of students and their attitudes towards undergoing vaccination against COVID-19 (N = 504)

Analysis with the χ^2 test showed no statistically significant relationship between the gender of the respondents and their attitudes towards vaccination: $\chi^2 = 4.15$, $df = 3$, $p = 0.246$

Effectiveness of COVID-19 vaccines according to secondary school students

Table 2 shows the respondents' answers to the second research question. We can see that almost half of the students were convinced of the effectiveness of the vaccines, recognising that they “provide a barrier to viruses”. The majority of the students surveyed spoke negatively about them. Almost 40% said that they do not help, more than 10% looked for adverse side effects and more than 8% considered them harmful (cf. Table 2).

Table 2

Students' opinions on the effectiveness of COVID-19 vaccines (N = 504)

Levels	Counts	% of Total	Cumulative %
They are harmful	42	8.3 %	8.3 %
They have adverse side effects	55	10.9 %	19.2 %
They do not help much	187	37.1 %	56.3 %
They are a barrier to viruses	220	43.7 %	100.0 %

The results obtained, taking into account the number of students and their attitudes towards the effectiveness of COVID-19 vaccines, are shown in Figure 2.

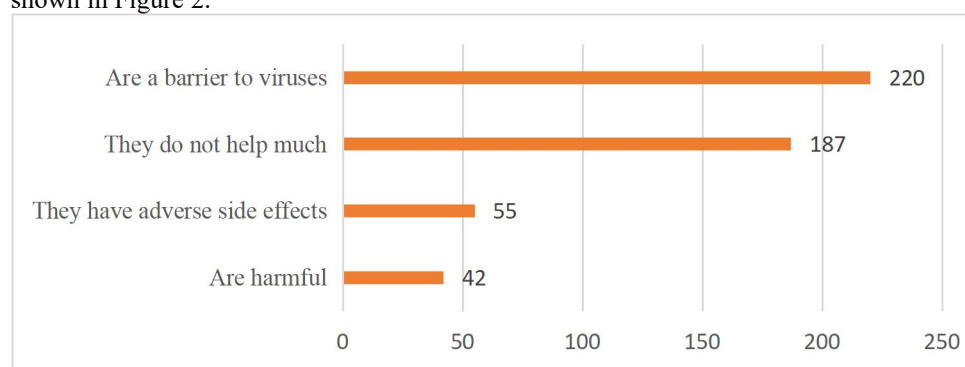


Figure 2. Number of students and their attitudes towards the effectiveness of COVID-19 vaccines (N = 504)

Analysis with the χ^2 test showed no statistically significant relationship between respondents' gender and their attitudes towards the effectiveness of COVID-19 vaccines:

$$\chi^2 = 0.78, df = 3, p = 0.854.$$

Fear of becoming infected with the COVID-19 virus

Table 3 shows the respondents' answers to the third research question. We can see that the majority of students were not afraid of being infected. Almost 40% of the respondents declared that they were rather not afraid of it, and a firm opinion of no fear was expressed by almost 30% of the students. One in four students was rather afraid of being infected, and only a small percentage expressed a firm affirmative answer (cf. Table 3).

Table 3

Fear of being infected with the COVID-19 virus (N = 504)

Levels	Counts	% of Total	Cumulative %
No	150	29.8 %	29.8 %
Rather no	200	39.7 %	69.4 %
Rather yes	124	24.6 %	94.0 %
Yes	30	6.0 %	100.0 %

The results obtained, taking into account the number of students in relation to the fear of COVID-19 infection, are shown in Figure 3.

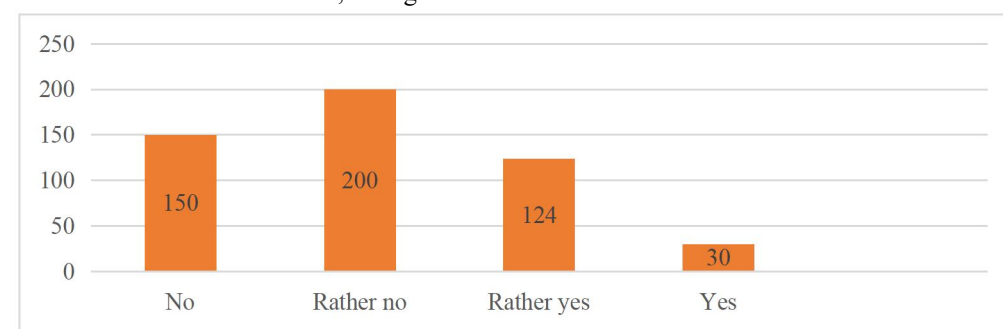


Figure 3. Number of students declaring the presence of fear of COVID-19 infection (N = 504)

Analysis with the χ^2 test showed that there was a statistically significant relationship between the gender of the respondents and their fear of COVID-19 infection: $\chi^2 = 22.4$, $df = 3$, $p < 0.001$. The percentage of women who feared infection was significantly higher than in the male respondents. The strength of this relationship, as measured by the Cramer's coefficient of convergence, was found to be weak (Cramer's $V = 0.211$).

Presence of fear of COVID-19 infection in the student's family environment

Table 4 shows the respondents' answers to the fourth research question. We can see that the majority of the surveyed students did not report the presence of concerns in their family home. A total of more than 61.5% of negative answers were recorded. More than 30% were rather afraid of infection, and only 5.2% gave a firm affirmative answer to this question (cf. Table 4).

Table 4

Is there a fear of contracting a virus in your home? (N = 504)

Levels	Counts	% of Total	Cumulative %
No	100	19.8 %	19.8 %
Rather no	210	41.7 %	61.5 %
Rather yes	168	33.3 %	94.8 %
Yes	26	5.2 %	100.0 %

The results obtained, taking into account the number of students declaring the presence of fear of COVID-19 infection in their family environment, are shown in Figure 4.

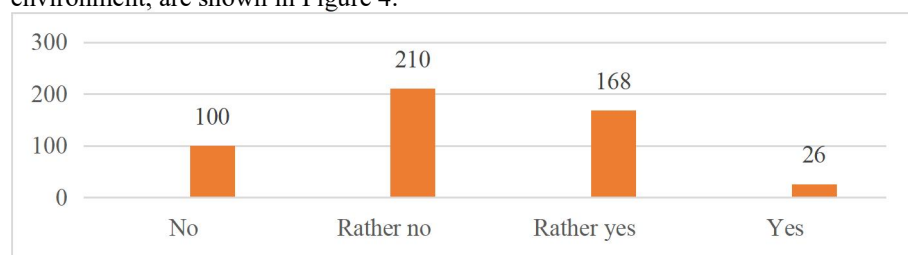


Figure 4. Presence of fear of COVID-19 infection in the student's family environment (N = 504)

Analysis with the χ^2 test showed no statistically significant relationship between the gender of the respondents and the presence of fear of virus infection in their family environment: $\chi^2 = 5.31$, $df = 3$, $p = 0.150$.

Percentage of students' family members or their relatives infected with COVID-19 virus

Table 5 shows the respondents' answers to the fifth research question. The majority of students surveyed (over 63%) confirmed the presence of COVID-19 infection in their family home. There were 22% negative responses; more than 14% of respondents were unaware of whether anyone in their family had been infected with the virus (cf. Table 5).

Table 5

Has anyone in your family been infected with COVID-19?

Levels	Counts	% of Total	Cumulative %
No	111	22.0 %	22.0 %
I am not aware	72	14.3 %	36.3 %
Yes	321	63.7 %	100.0 %

The results obtained, taking into account the number of students declaring the presence of COVID-19 infection in their family environment, are shown in Figure 6.

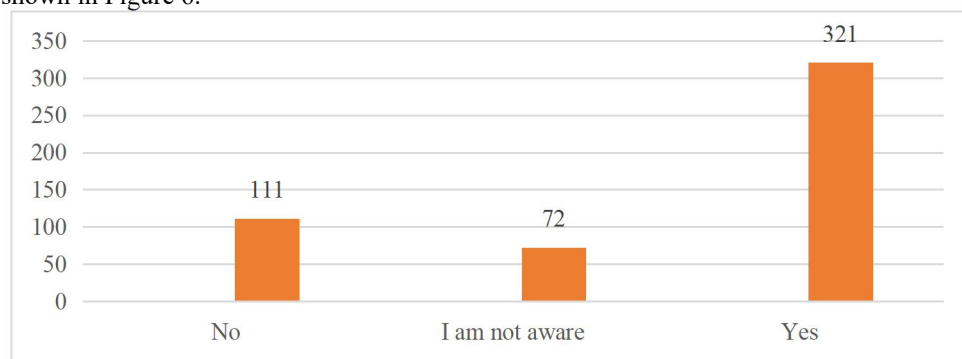


Figure 5. The presence of COVID-19 infection in the family environment of the pupils surveyed (N = 504)

Analysis with the χ^2 test showed no statistically significant relationship between the gender of the respondents and the presence of COVID-19 infection in their family environment: $\chi^2 = 0.20$, $df = 2$, $p = 0.904$.

Students' views on changes in teaching during the COVID-19 pandemic

Table 6 shows respondents' answers to the sixth research question. Almost 21% have no opinion on the subject. Overall, more than 42% of the students consider them generally favourable or very favourable and 36.5% negatively (generally unfavourable or very unfavourable) in the context of the introduced changes in teaching related to distance learning (cf. Table 6).

Table 6
Students' views on changes in teaching during the pandemic (N = 504)

Levels	Counts	% of Total	Cumulative %
Very unfavourable	68	13.5 %	13.5 %
Generally unfavourable	116	23.0 %	36.5 %
I have no idea	104	20.6 %	57.1 %
Generally favourable	139	27.6 %	84.7 %
Very beneficial	77	15.3 %	100.0 %

The results obtained, taking into account the number of students expressing particular opinions on the changes to the teaching system during the COVID-19 pandemic, are shown in Figure 6.

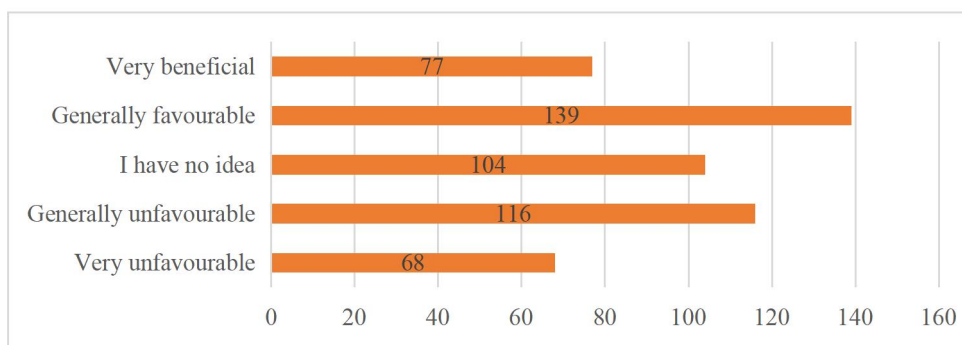


Figure 6. Number of pupils expressing specific opinions on changes to the education system during the COVID-19 pandemic (N = 504)

Analysis with the χ^2 test showed that there was a statistically significant relationship between the gender of the respondents and their opinions on the changes in teaching during the COVID-19 pandemic: $\chi^2 = 15.2$, $df = 4$, $p = 0.004$. The percentage of women negatively assessing the changes made was found to be significantly higher than in the group of male respondents. The strength of this relationship, as measured by Cramer's coefficient of convergence, was found to be weak (Cramer's $V = 0.174$).

Opinions of secondary school students on the orders and restrictions introduced by the Polish government during the COVID-19 pandemic

Table 7 shows the respondents' answers to the seventh research question. We can see that almost half of the students surveyed felt that they were "more burdensome than beneficial" and 14.9% regarded them as "smoke and mirrors". Just over 37% of the students felt that the restrictions introduced were sensible and necessary (cf. Table 7).

Table 7.
Opinions of secondary school students on the orders and restrictions introduced during the COVID-19 pandemic (N = 504)

Levels	Counts	% of Total	Cumulative %
They are more burdensome than beneficial	241	47.8 %	47.8 %
They are smoke and mirrors, mere "dimming", irrelevant to the pandemic	75	14.9 %	62.7 %
They are generally sensible and necessary	188	37.3 %	100.0 %

The results obtained, taking into account the number of students expressing individual opinions on the changes to the restrictions and limitations in place during the COVID-19 pandemic, are shown in Figure 7.

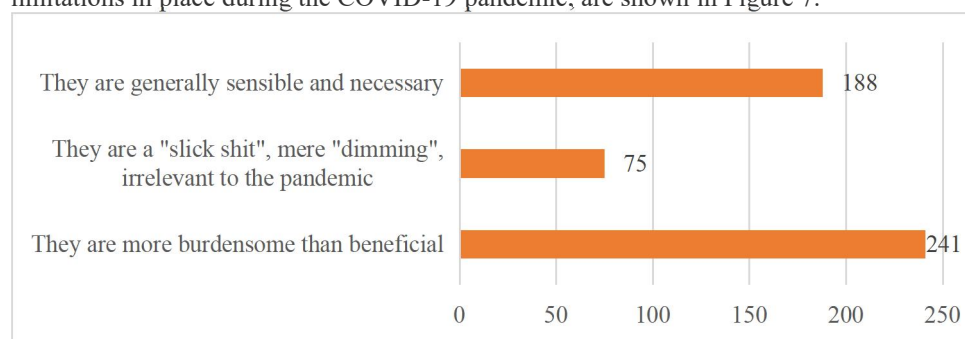


Figure 7. Number of students expressing individual opinions on changes to the restrictions and limitations in place during the COVID-19 pandemic (N = 504)

Analysis with the χ^2 test showed no statistically significant relationship between the gender of respondents and their opinions on the restrictions and limitations introduced during the COVID-19 pandemic: $\chi^2 = 4.28$, $df = 2$, $p = 0.118$.

A correlation between pupils' fear of contracting the virus and that of their family members or relatives

An additional analysis was performed using the chi-square test of independence and the Cramer coefficient of dependence in order to test whether there was a relationship between students' fear of COVID-19 infection and the anxiety observed by students in their families. Analysis with the χ^2 test showed the presence of statistically significant dependencies in the study area: $\chi^2 = 199$, $df = 9$, $p < 0.001$. The strength of the dependency was moderate: Cramer's $V = 0.363$). That is, students' higher fears of COVID-19 infection were accompanied by higher fears in their family members.

Discussion

The aim of the study was to collect the opinions of adolescents aged 14-20 years attending secondary schools on the role of vaccination and the restrictions introduced during the COVID-19 pandemic. It was decided to test whether gender differentiated the attitudes of respondents towards the issues analysed.

Eight research questions were posed. The first covered the respondents' attitudes towards vaccination against COVID-19. We wanted to know what number of students had already been vaccinated with at least one dose of the vaccine. The values obtained (63.5%) were slightly lower than those indicated in the world population and higher than the average in the Polish population [11]. It should be noted that the majority of the adolescents surveyed did so of their own free will, without the need for encouragement or pressure from their environment. On the other hand, almost one in four students strongly declared their unwillingness to undergo vaccination. We can assume that this number may be higher; merely declaring a willingness to undergo these vaccinations in the future does not mean that everyone will actually take this option. In another Polish study conducted in autumn 2021 [12], the percentage of vaccinated adolescents (62.6%) was comparable to our data.

The second research question referred to the opinion of adolescents on the effectiveness of the COVID-19 vaccines available in Poland. The study did not mention their names, although it should be noted that the most commonly used products worldwide were: Pfizer, Moderna, Astra Zeneca, Johnson & Johnson, and Sputnik-V [13]. Almost 44% of respondents felt that they were an important barrier to the spread of viruses and were therefore more aware of the preventive effects associated with, among other things, protection against illness or serious complications. Only 7% fewer students were convinced that vaccines do not help. Moreover, almost 20% were looking for negative effects on health and life. According to Blaszczyk [12], young people may not have felt particularly threatened, because in the dominant narrative, the virus was not supposed to be particularly dangerous for them. A study of Krakow youth carried out by Dlugosz [14] showed that young people perceive the virus epidemic to be more dangerous for others than for themselves, which is related to the notion of unrealistic optimism [15,16]. The notion expresses the conviction of a specific group of people to be less inclined to experience negative events (e.g., the threat of the virus) and more likely to have positive experiences compared to others. According to Dolinski et al. [16], these unrealistic expectations are more ubiquitous, and people adhering to this view are less engaged in prevention activities and display risky behaviour. Just take a look at the interesting material collected by Ciesek-Slizowska et al. [17]. The comments of those who speak negatively about vaccination most often include a lack of trust in authorities, doctors, pharmaceutical companies, or the media. There is a coexistence of beliefs about the low effectiveness of vaccines, opinions that they have not been sufficiently tested, that they weaken the organism, cause side effects or even lead (may lead) to death [17]. The authors of the report [17] note that vaccinated people are increasingly becoming the object of criticism and their actions promoting vaccination are belittled and described as naïve. The reason for the depreciation of the effectiveness of vaccines is pondered by Konopka [18], who recalls that since the outbreak of the pandemic, the vaccine has been presented almost as the holy grail of the fight against the coronavirus. The author puts forward the thesis that the reasons for such behaviour can be found, for example, in emerging fake news. Interesting data is provided by a study by Lazur et al. [18,19], which shows that the highest percentage of negative attitudes towards vaccine acceptance (27.3%) was found among respondents from Poland. It is worth noting that almost 72% of respondents from 19 countries ($N = 13426$) when asked if they would accept a validated and safe vaccine, 71.5% answered in the affirmative.

The next research questions were related to anxiety and fear of contracting the coronavirus. Question three covered respondents' own anxiety, and question four covered the presence of anxiety in others in the family. Young people were less concerned about themselves and more likely to perceive negative emotions in others. Overall, 30.6% of young people manifested fear of COVID-19, and almost 8% more noticed such fear in loved ones. As noted by experts [5], young people experience anxiety and tension resulting from a new, unclear, and unpredictable situation. It is difficult to argue with this position. The social distance, the closure of schools, and the real threat to health and life, as researchers write [5], translate into a high psychological burden on young people. From the available literature [5,7,20-23] we know that higher levels of anxiety behaviour and depressive symptoms are observed in the female gender. We noted similar observations in our own study, which showed that women were significantly more likely than men to report fear of contracting coronavirus. According to Kulig-Kulesza [21], the level of perceived fear of infection may be influenced by age, gender, education, the presence of chronic diseases, and the media. According to experts [24], in the first wave of the epidemic, young people were mainly afraid of their relatives, especially grandparents, getting ill. In contrast, in the second wave, they more often signalled fear for their health and reported emotional difficulties in coping with their negative mood. As Poleszak says [24], it is important to appreciate the value of health in a difficult pandemic time. The author adds: "It is difficult for healthy children and adolescents to understand the importance of this value (compared to adults) because they relatively rarely (fortunately) encounter serious illness in their surroundings" [24].

In response to the fifth research question, respondents' knowledge of the presence of SARS-CoV-2 infection in their families was verified. The vast majority of respondents reported the presence of the disease in their family environment. As Konopka notes [18], "when the pandemic is in full swing, almost everyone knows someone who has been sick or who has lost a family member or friend". According to Kulig-Kulesza [21], more than 70 % of those surveyed consider COVID to be a life-threatening disease. In spite of this, Poles are still distanced from vaccination [18]. The opinion of the Church hierarchy around the moral evaluation of the use of certain vaccines has caused a media stir [25] and numerous repercussions and emotions in the social environment. From Ferdynus' work [25], for example, we can learn about the moral rationale of a Catholic for refusing to accept the COVID-19. According to Żuradzki [26], it seems that when someone does not believe in the findings of science and does not want to accept COVID-19 then the best way to get them to vaccinate would be to explain to them the mechanism of action. Drawing on scientific studies and experiments, the author reminds us of the many mechanisms and traps of thinking that make this kind of psychoeducation, however, not an easy task. The limited trust in scientists and politicians translates into the reluctance of a large part of the population to be vaccinated against COVID-19 [26].

The sixth research question asked about students' opinions on the changes in teaching during the coronavirus pandemic. Overall, 42.9% of respondents viewed distance education positively and six per cent less negatively. Almost one in five students had no opinion on the subject. There is a strong polarisation of opinion around the issue of distance learning. The percentages of favourable and unfavourable evaluations are close to each other. However, a statistically significant relationship related to the gender of the respondents was observed. Girls, more often than boys, perceive it negatively. It should be recalled, following Pyżalski and Walter [27], that by a decision of the Polish government, educational institutions in Poland were temporarily closed on March 12, 2020. The operation of schools was initially temporarily suspended for a period of two weeks. In-service education was resumed for a period of one and a half months at the beginning of the 2020/21 school year. Children from grades I-III temporarily returned to school, but the total period was not longer than 2 months. The gradual return of all primary and secondary pupils began in mid-May 2021. As Pyżalski and Walter point out [27], Poland was one of the countries that maintained remote education as a primary form of work for the longest time. According to Poleszak [24], among children and young people, the state of distance learning limits the

fulfilment of natural developmental needs. In a study by Ptaszek et al. [28], it was shown that more than a quarter of the students had difficulty mastering the material, problems with attention, and completing tasks on time during the lesson. Half of the pupils rated online education as less attractive than a stationary form of education at school.

In a study by Jaskulska et al. [29,30], 35% of respondents liked distance learning very much and would prefer to continue learning in this mode instead of returning to a stationary school. In addition, the majority of male and female students would like hybrid learning after the COVID-19 pandemic (45%), but they anticipate that schools will remain stationary in the future [29]. The results of these studies showed that online learning appeals more to boys than to girls [29,30]. The results obtained are consistent with the results of our work. The observations of a study by Slovak researchers [3] were also found to be consistent with ours and showed significant variation in the results of students' assessment of the quality of online education. Boys were more satisfied than girls. They saw the advantages of online education more often in the beliefs: "I have everything I need at home"; "I don't have to get up as early as usual"; "I can stay at home and learn"; "We could join the lessons from anywhere"; "I liked online presentations"; "Teachers applied a better approach"; "There was a more relaxed atmosphere during the lessons"; "We could study like under normal conditions"; "We learned everything we would learn in the classroom"; "We had fewer lessons and we started later"; "We had more time for doing homework and for other activities"; "During the lessons, I had an opportunity to see my teachers and schoolmates at least virtually" [3]. Liu et al. [6], highlighted the problem of the amount of daily digital screen time among school-aged children during the COVID-19 outbreak in China. Using multivariate logistic regression analysis, they found that each additional dioptr hour of digital screen use is associated with a higher likelihood of symptomatic myopia development [6]. According to Dlugosz [14,31], students may have learned less as a result of distance learning than in the traditional learning format. In one of his papers [31], he noted that online education was negatively assessed by 46% of respondents in Poland and 51% in Ukraine. We can assume that the changes in students' lives caused by the COVID-19 crisis, including the closure of schools and the start of distance education, can have both positive and negative effects on the psychosocial functioning and health of schoolchildren [32].

In response to the next research question, the opinions of school adolescents on the restrictions and limitations introduced during the COVID-19 pandemic were verified. It should be recalled that, among other things, disinfection stations with temperature measurement function, masks, numerous procedures and rules of conduct (e.g., disinfecting hands at the entrance to the school or classroom, keeping a social distance at least 1.5m. or the obligation to wear masks). Almost half of the pupils rated the orders and restrictions introduced as more burdensome than beneficial, and almost 15% thought they were "smoke and mirrors" or irrelevant to the pandemic. Girls and boys made similar comments. In the study by Blaszczyk et al. [12], adolescents showed a positive attitude towards wearing protective masks (37.1% rather positive and 16.5% positive) and a negative one towards keeping their distance (only 6.8% expressed the opposite opinion). Almost half of the respondents admitted to disinfecting their hands at school or in other public places. The authors of the report conclude that young people tend to display prophylactic health-promoting behaviour in relation to external restrictions [12]. It is important to show them the beneficial health consequences of their actions. After all, as Poleszak writes [24], the pandemic period is a difficult time to live in but a great time to educate about the value of health.

The final research question was: is there a correlation between pupils' fears of contracting the virus and those of their family members or relatives? The results of our study revealed a positive, moderate correlation. This shows the important role of socialisation, modelling, imitation, internalisation of certain assumptions, attitudes, and behaviours in the family environment. Higher levels of fear of COVID-19 infection in the respondents' family homes support the observation of higher anxiety in these students. This is noted by Kusiak-Witek [33], who concludes: "information about more people infected with the disease, death, suffering, and the isolation associated with contagion cause anxiety reactions in children that have lost their adaptive function and have become inadequate to the stimuli". The pandemic has changed our lives by bringing many losses and limitations. However, as Poleszak points out [24], this experience is an opportunity to make children and young people realise what an important value health is. After all, it must be important if we are keeping people in their homes, closing businesses, and restricting travel [24].

Conclusions

1. The majority of the adolescents surveyed have been vaccinated against COVID-19 and have positive opinions about the effectiveness of the vaccines.
2. Students are less concerned about contracting the virus and more likely to perceive this concern in others in their family. Girls are more likely than boys to report anxiety before contracting COVID-19.
3. The majority of students have a positive view of distance education, but girls are more likely than boys to express negative views about it.
4. Almost half of the students have a negative perception of the orders and restrictions put in place during the pandemic.
5. There is a positive correlation between students' and their relatives' fears of contracting the SARS-CoV-2 coronavirus.
6. The results obtained can be helpful in building preventive programmes and shaping pupils' health-promoting attitudes.

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