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ATTITUDES OF STUDENTS, TEACHERS, AND PARENTS REGARDING COVID-19 SCREENING TESTS CONDUCTED IN SCHOOL

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Abstract

Introduction. The introduction of COVID-19 screening through rapid antigen tests has become a key mechanism to ensure the continuity of the learning process and safety of school environment during pandemic.
The objective of the study was to investigate and analyse the attitudes and beliefs of students, teachers, and parents regarding the rapid antigen test as a method to limit COVID-19 spreading in school environment.
Material and methods. An online anonymous survey was conducted among 228 participants, 11th and 12th grade high school students (n=114), teachers (n=44) and parents (n=70) in November 2021.
Results. 43.9% of students and 52.9% of parents agree with rapid antigen testing for COVID-19, while over 63.3% of teachers disagree with it. Students (45.6%) and parents (48.6%) shared optimistic expectations that testing for COVID-19 would reduce the spread of the virus in schools, while 59.1% of the

Résumé

Attitudes des élèves, des enseignants et des parents à l'égard des tests de dépistage COVID-19 effectués à l'école

Introduction L'introduction du dépistage du COVID-19 par le biais de tests antigéniques rapides est devenue un mécanisme clé pour assurer la continuité de l'apprentissage ainsi que la sécurité de l'environnement scolaire pendant une pandémie.
L'objectif de l'étude est d'effectuer une recherche et d'analyser les attitudes des élèves, des enseignants et des parents pour effectuer des tests antigéniques rapides comme méthode de limitation du COVID-19 en milieu scolaire.
Matériels et méthodes. Au cours de la période d'octobre à novembre 2021, une enquête anonyme en ligne a été menée auprès de 228 participants – des élèves de 11e et 12e classes au lycée (n=114), leurs enseignants (n=44) et leurs parents (n=70).

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teachers surveyed remained sceptical about this prevention measure. The interruption of school classes does not find support among students and parents, as well as among members of the teaching staff.
Conclusions. According to students and parents, rapid antigen testing for COVID-19 seems a more acceptable solution than closing school completely. Given the concern of teachers to conduct antigen tests in the school environment, it is necessary to adequately plan the participation of medical professionals in this process, instead of delegating these activities to teachers.

Keywords: COVID-19 rapid test, school, students, teachers, parents.

Résultats. 43.9 % d'élèves et 52.9% de parents approuvent les mesures introduites pour filtrer les entrées par le biais de tests antigéniques pour COVID-19. En revanche, 63.6% des enseignants interrogés ne sont pas d'accord avec la réalisation de tests médicaux en milieu scolaire. Les élèves (45.6 %) et les parents (48.6 %) partagent des attentes optimistes selon lesquelles le dépistage du COVID-19 réduira la propagation du virus à l'école, tandis que 59.1% des enseignants restent sceptiques quant à cette mesure préventive. L'interruption des cours ne trouve pas de soutien chez les élèves et les parents, ainsi que chez les membres du personnel enseignant.
Conclusions. Selon l'avis des élèves et des parents, effectuer des tests antigéniques comme filtre d'entrée semble plus acceptable que de fermer complètement les portes de l'école. Étant donné le souci des enseignants d'effectuer des tests antigéniques à l'école, il est nécessaire de planifier d'une façon adéquate la participation des professionnels de la santé à ce processus, au lieu de déléguer ces activités médicales aux pédagogues.

Mots-clés: COVID-19, tests antigéniques, école, élèves, parents

Introduction

School closure has been one of the most dramatic consequences of the COVID-19 pandemic. Concerns about the impact of school closure on children's learning were raised early in the pandemic. There is also a widespread concern about the negative impact of the pandemic on children's social interaction and mental well-being[1,2]. With the emergence of new virus mutations, such as Delta and Omicron, having higher virulence among children and adolescents, the problem of COVID-19 control and prevention methods in schools remains relevant and socially significant.

Health and education institutions have taken alternative actions to control the crisis in a number of countries. The introduction of COVID-19 screening through rapid antigen tests has become a key mechanism to ensure continuity of learning process and school environment safety in the face of a relentless pandemic. The synthesized scientific experience shows that early screening by determining the source of infection is one of the most effective methods of prevention, laid down in the so-called 'Five-Early' COVID-19 Pandemic Combating Model[3-5].

At the same time, screening by rapid antigen tests conducted among students in primary and secondary schools in Italy (November 2020 – February 2021) identified a very small number of SARS-CoV-2 cases[6]. Scientific analyses proved that cases of infection among students were rare and did not have a cluster distribution. The cases reported among school staff were also a few, suggesting a low probability of infection in school, due to the necessary hygiene rules and non-admission of symptomatic people[6]. Researchers have concluded that school opening should not be considered a relevant factor influencing the prevalence of COVID-19[2,7]. A study in Ireland conducted before primary school closure (before March 2020), based on the epidemiological data available, also found no strong evidence of COVID-19 transmission in school environment[8]. A German study reported similar findings, and stated that the closure of schools for long periods can have detrimental effects on the psychological well-being of the pupils[9]. Moreover, school closures in Japan did not show any mitigating effect on the transmission of SARS-CoV-2 infection[10]. These similar results suggest that school closures do not lead to a more effective control of viral transmission than that of implementation of social distancing and hygiene strategies (handwashing).

In Bulgaria, the school year 2021/2022 started in-person, but with the growing numbers of cases from the fourth wave of COVID-19 all schools were closed, and children were taught in online environment. The students were brought back to class thanks to the Ministry's imposing of antigene testing for COVID-19 as an entry filter for in-person classes. According to an Ordinance of the Ministry

of Health, testing is done once a week for students and twice a week for pedagogical and non-pedagogical staff, except for those who have valid documents for vaccination, past illness or testing. In case of disagreement on the part of the parents /guardians/ custodians for a COVID-19 test to be made, the student is not allowed to attend training and training is conducted online. In the municipalities where there were more than 250 cases per 100,000 people students were taught in-person, without being tested[11,12].

The first results of tested children in the lower secondary stage of education also showed a relatively low incidence of COVID-19 cases. 600,000 tests were performed in primary school children between 10-26 November 2021, of whom only 116 (0.002%) tested positive[13].

Against the background of the aggravated COVID-19 epidemic environment and the threat of a new educational lockdown, the introduction of stricter measures such as mass testing by rapid antigen tests in schools is generating controversies among both teachers and parents.

The objective of the study was to investigate and analyse the attitudes and beliefs of students, teachers, and parents in view of rapid antigen test conduct as a screening method to limit COVID-19 in school environment.

Materials and methods

An online anonymous survey was conducted in November 2021 among students of 11th and 12th grade who attended two high schools in the city of Plovdiv (Bulgaria), their parents, and teachers. For this purpose, an electronic survey card has been developed, containing an automatic filling link in Google Forms. The survey was disseminated through social media – the school platform for online learning, official emails of teachers, Facebook – parent groups.

The sample-questions in the questionnaire included the following:

- Do you support the testing among students?
- Have you been informed about the specifics of the testing with COVID-19 rapid antigen tests?
- Do you think the introduction of antigen tests will limit the spread of the virus in school?
- Do you support the interruption of school classes as means to limit the spread of the COVID-19?

A 5-point Likert scale (1-Strongly agree to 5-Strongly disagree) was used to structure the answers in the survey. 114 students, 70 parents, and 44 teachers answered the questionnaire. Out of a total of 228 participants in the survey, 76.3% were female and 23.7% were male. The data obtained were analysed using SPSS statistical processing software, version 19.0. The Kruskal Wallis Test at a significance level of $p < 0.05$ was used to test hypotheses.

Results

The results of the current study among representatives of the three stakeholders – students, parents, and teachers – found different opinions about the screening tests in school. The predominant share of students (43.9%) and their parents (52.9%) agree with the measures introduced as an input filter through antigen testing for COVID-19, while over 63.6% of teachers declared disagreement with the implementation of these activities in a school environment (Fig.1).

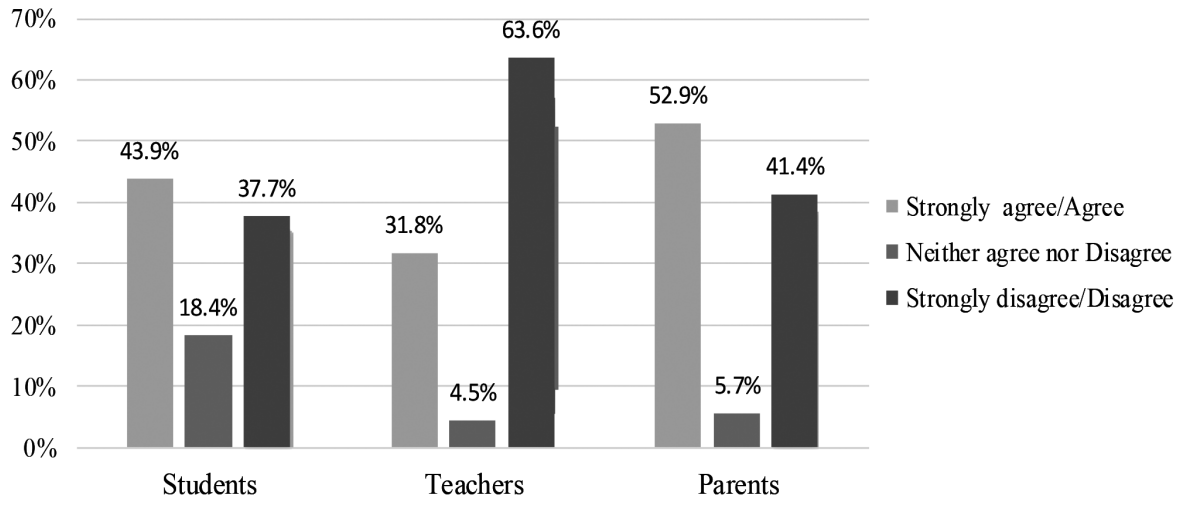

Figure 1. Attitudes of the respondents towards Sars-CoV-2 rapid antigen testing at school

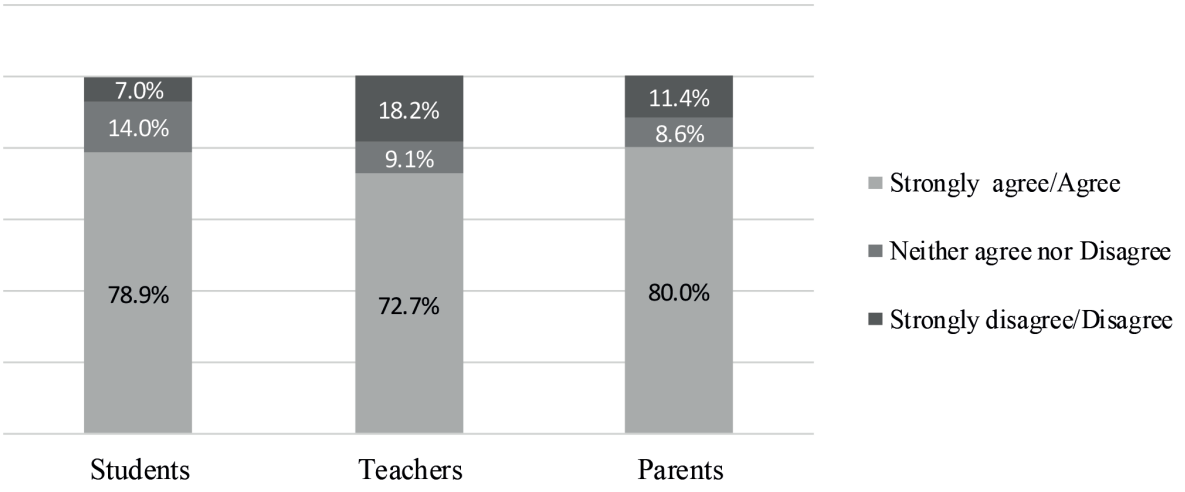

Figure 2. Awareness of respondents toward specifics of Sars-CoV-2 rapid antigen tests

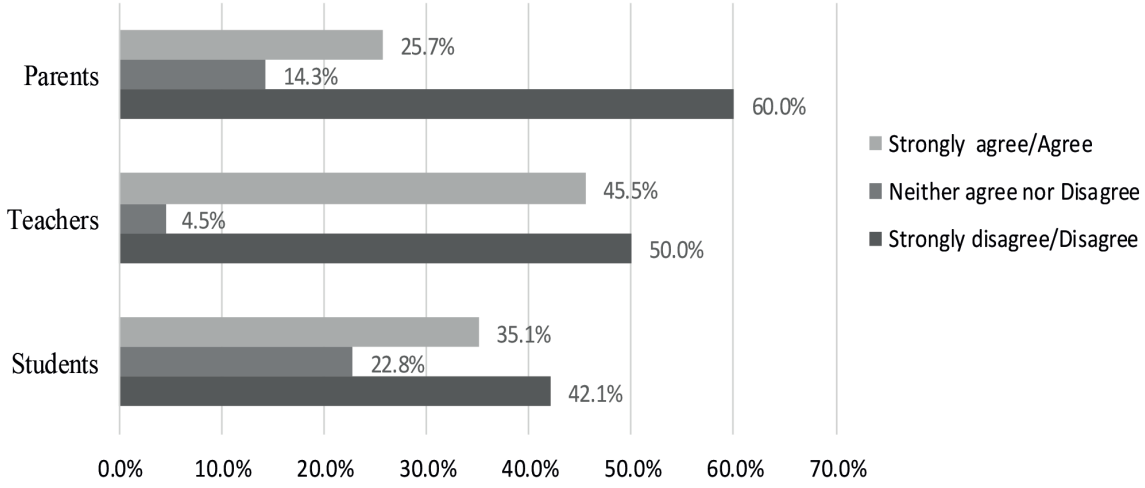

Figure 3. Attitudes of the respondents towards school closure as a restrictive measure against for Covid-19

Students (78.9%), parents (80%), and teachers (72.7%) declare that they have been informed about the specifics of the testing with fast antigen tests and the method used for doing them (Fig. 2).

The answers to the 'Do you think the introduction of antigen tests will limit the spread of the virus in school?' question once again showed disagreement among the groups surveyed. Students (45.6%) and parents (48.6%) shared optimistic expectations that testing for COVID-19 would reduce the spread of the virus in schools, while 59.1% of the teachers surveyed remained sceptical of this prevention measure.

The interruption of school classes as a measure to limit the spread of COVID-19 does not find support among students and parents, as well as among members of the teaching staff. The most obvious disagreement was for school closure, among 60% of the parents group (Fig. 3).

To assess whether there is a statistically significant difference between the medians in responses of three researched independent groups we used the Kruskal – Wallis Test. The results are displayed in Table 1.

Discussion

Although schools and educational settings do not seem to play an important role in the transmission of COVID-19, virus transmission by asymptomatic and pre-symptomatic students is possible. Therefore, a well-implemented testing strategy in school settings might play an important role in preventing virus transmission within the school setting and to the community[14,15].

Table 1. Differences in responses given by the group of respondents

Questions	Students			Teachers			Parents			P
	N	Mean	Std. Deviation	N	Mean	Std. Deviation	N	Mean	Std. Deviation	
Q1	114	2.930	1.474	44	3.550	1.532	70	2.740	1.567	0.019*
Q2	114	1.621	1.076	44	1.822	1.317	70	1.701	1.208	0.050*
Q3	114	2.950	1.296	44	3.430	1.531	70	2.740	1.510	0.044*
Q4	114	3.050	1.211	44	3.050	1.539	70	3.370	1.299	0.200

*P≤0.05

Q1 Do you support the testing amongst students?
Q2 Have you been informed about the specifics of the testing with Covid-19 rapid antigen tests?
Q3 Do you think the introduction of antigen tests will limit the spread of the virus at school?
Q4 Do you support the interruption of school classes as means to limit the spread of the Covid-19?

Our study assessed the attitudes toward this strategy among three groups of stakeholders: high school students, teachers, and parents. The results revealed important similarities and differences in opinions about in-school COVID-19 testing across different types of stakeholders.

All groups share that they are informed about the specifics of the study with rapid antigen tests and the technique for their implementation. An important share of students (43.9%) and their parents (52.9%) agree with the measures introduced as an input filter through rapid antigen testing and believed that would be beneficial to prevent COVID-19 transmission in school.

Our results are largely confirmed by the study of Unger et al (2020), which includes broad support for conducting antigen tests at school, both among students and parents, and among teachers and school administrators. Overall, students believed that COVID-19 testing in school would help them feel safe at school. The parents also were comfortable with testing in schools and reported that would bring them peace of mind and make them less worried about sending their children back to school. Teachers were generally in favour of COVID-19 testing, as a way to keep the school community healthy and to provide reassurance that the school was safe[16].

In contrast, the group of teachers in our study declared disagreement with the implementation of COVID-19 testing in schools and remained sceptical of this prevention measure. The unplanned actions of the state institutions in the absence of health specialists to perform the tests found the teachers themselves unprepared, transferring to them responsibilities for medical manipulations, that are very different from their job descriptions. The delegation of activities which are not typical for teaching profession is obviously one of the factors determining the reserved attitude towards the conduct of rapid antigen tests in school by 63.6% of the teaching staff.

The opinion of the trade union organization of Bulgarian teachers appeals to the Ministry of Health to provide the opportunity for antigen tests to be performed by parents at home, as this is the practice in some European countries. Teachers' motives are that they cannot be held responsible for medical manipulations and become front-line employees. Furthermore, antigen testing at the beginning of the school day is difficult to perform, and testing of 20-25 children requires at least 4-5 adults. According to the teachers' union, there are preparatory groups in many schools for whom testing is not provided, and they study in adjoining rooms with other students[17].

From a parent's point of view, they are overwhelmed by the risk of losing their jobs while taking care of their children due to school closure. Probably many parents feel unprepared to effectively support children's training at home. Setting learning time, helping children understand the material taught in different subjects and keeping them motivated while learning online creates further difficulties. These circumstances are likely to provoke positive attitudes by parents to conduct rapid antigen tests, as a condition for their children to return to school versus the alternative of an educational lockdown. The fact that the interruption of school classes, as a measure to limit the spread of COVID-19, does not find support among students and parents, as well as among members of the teaching staff is indicative. The most obvious disagreement is for school closure (60% of the parents group).

Limitations of the study

The study included a small sample of school teachers, parents and students, who responded to an email invitation. Data were collected from November 2021, when COVID-19 rapid antigen testing was required. Attitudes toward returning to school with or without COVID-19 testing might have changed since the data were collected. This study focused on high school teachers, students and parents. These findings

might not be applicable to elementary and middle school settings.

Conclusions

The role of students and schools in SARS-CoV-2 transmission will continue to be an important area of attention in the 2022/2023 school year. Prior to the beginning of the new school year, there is the possibility to reflect upon and identify areas for improvement within educational settings, to optimize societal prevention, preparedness and response efforts of teachers and students directed towards the COVID-19 pandemic.

This study raises important questions about measures to prevent COVID-19 in schools. School-based COVID-19 testing is a potential strategy for allowing schools to be open in the conditions of an ongoing pandemic. According to students and parents, antigen test conduct as an input filter seems a more acceptable solution than closing school doors completely. Given the concern of teachers to conduct antigen tests in school environment, it is necessary to adequately plan the participation of medical professionals and technical assistance in this process to implement testing programs effectively.

Author Contributions:

Conceptualization, M.T., R.D., G.P.; methodology, M.T. and R.D.; formal analysis, M.T. and R.D.; investigation, M.T. and R.D.; resources, M.T.; data curation, M.T. and R.D.; writing–original draft preparation, M.T.; writing–review and editing, R.D and G.P.; visualization, M.T., supervision, G.P. All the authors have read and agreed with the final version of the article.

Compliance with Ethics Requirements:

„The authors declare no conflict of interest regarding this article"

„The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from all the patients included in the study"

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