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Factors influencing attitudes toward distance education in a sample of students learning in a disadvantaged area

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RESEARCH ARTICLE

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ABSTRACT

Investigating disadvantaged children is a priority area concerning education and health. However, little attention has been paid to pandemic-specific research in recent years. In the present study, we aim to explore the attitudes toward distance education in a sample ($N = 305$) of 7–8th grade students studying in disadvantaged settlements concerning the first wave of the coronavirus pandemic. Attitudes towards distance education were measured using a 16-item tool. Factor analysis was applied to detect the factors of attitudes towards distance education. Variables influencing these factors were measured by linear regression analysis including well-being, perceived stress and support, academic achievement, and sociodemographic background. The results indicate that four factors (learning difficulties, poor health, time saving and safety, and distance learning preference) can be distinguished. The effects of gender, type of settlement, deprivation and objective financial status is significant regarding distance learning preference and perceptions of poor health. Regarding health indicators, a protective role of support from teachers and a hindering role of stress indicators were found. The role academic performance was insignificant. Overall, the factors influencing attitudes towards distance education partly follow the trends of the factors influencing perceptions of traditional education. However, it is necessary to stress the crisis nature of the pandemic.

KEYWORDS

COVID-19 pandemic, remote education, attitude analysis, disadvantaged situation, health, social support

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INTRODUCTION

According to the pedagogical approach, the socio-culturally disadvantaged situation "…refers to the economic, social and cultural circumstances that place a certain proportion of pupils in a disadvantaged position concerning the majority in terms of progress at school" (Fejes, 2006). Several factors make up this set of circumstances: parents' educational attainment, financial status, family structure, number of children, minority ethnicity and differences in place of residence (Páskuné Kiss, 2010). These aspects can have a major impact on children's intellectual development, their success in fitting in and performing up to school expectations (Gyarmathy, 2010), and have a negative impact on their physical, psychological and mental development (Réthy, 2020) (Fig. 1).

Socio-culturally disadvantaged pupils start school with poorer skills and backlog. This is due to their lack of knowledge and vocabulary and their external rather than intrinsic motivation. In many cases, these factors hinder children from performing up to school expectations, and their performance becomes weaker and weaker each year (Harmatiné Olajos, 2012; Szabó, Kovács, & Polonyi, 2021).

SOCIOCULTURAL DISADVANTAGE AND HEALTH

Thanks to a holistic approach, today, when we talk about health, we mean our physical and mental and psychological health. The health status of a society is influenced by several economic, political and sociocultural factors (Libiczki & R. Fedor, 2022). In this context, it is not surprising that, beyond educational performance, sociocultural disadvantage negatively impacts physical and mental health and health behaviour (Nagy & Kovács, 2017). For obvious reasons, education and income are determinants of life expectancy (Réthy, 2020), as people from lower

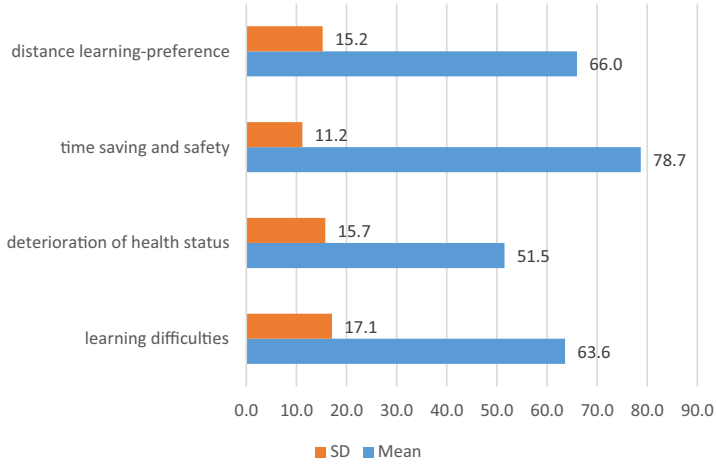

Fig. 1. Manifestation of attitudes towards distance education as reflected in each dimension (*Source:* PCSET 2021; $N = 305$)

social groups are often unable to access adequate health services, and their health behaviour and attitudes towards healthy lifestyles may be inadequate. Social disadvantage leads to childhood and adult morbidity. For example, the development of chronic diseases is not uncommon due to housing problems. The lower the social class, the higher the prevalence of health risk behaviours (Daw, Margolis, & Verdery, 2015; Libiczki & R. Fedor, 2022).

Inappropriate conditions of disadvantage often lead to social exclusion and lack of respect, which can escalate the situation and have a negative impact on mental well-being (Réthy, 2020). Exclusion and loneliness can also be associated with anxiety, depression and aggressive behaviour (Arslan, 2018; Baumeister & Leary, 1995; Kovács, Dan, Hrabéczy, Bacskai, & Pusztai, 2022).

According to the European Quality of Life Survey conducted in the 2000s, education is one of the determinants of quality of life and objective well-being. Children should experience equal treatment and conditions at school, regardless of their background. Access to quality education as an underlying right has not yet been achieved in the school system (Réthy, 2020; Tímár, Kovács, & Váradi, 2015), and this inequality between disadvantaged and non-disadvantaged children in this respect may have been exacerbated by the lockdown brought about by Covid-19.

These significant disadvantages experienced in everyday life increase learning failure, the feeling of inadequacy and lack of motivation, failures, and exclusion in class, which not only manifests itself in anxiety, frustration and negative self-image but also in a feeling of learning helplessness (Réthy, 2020), which not infrequently leads to depression (Kopp, 2006; Tőzsér, 2019).

THE IMPACT OF COVID19 ON CHILDREN WITH SOCIOCULTURAL DISADVANTAGES

The Covid-19 pandemic in early 2020 has completely disrupted not only our country but the whole world. A global crisis has emerged, with new rules, restrictions, and ways of coping and adapting to protect against the virus. The adaptive management of such unexpected, unpredictable and unprecedented situations depends on the personal, social and sociocultural situation and characteristics of the individual. Resilience, internal control, self-image and a supportive environment are crucial (Hajduska, 2008).

Children growing up in socio-culturally disadvantaged situations are socialised and exposed to patterns and life situations that are not necessarily conducive to the development of appropriate coping strategies (Réthy, 2020). Early failures often result in defensive coping strategies and a state of learned helplessness. Success or failure is attributed to external factors. Their sense of their helplessness is also associated with neurological changes, so it is not surprising that this learned behaviour, which is, in fact, behavioural depression, is also manifested in later situations. Although learned helplessness develops through individual experiences, it is often automatically passed on as a pattern in these families (Gyarmathy, 2010). Anxiety, frustration, depression and the underlying feelings of helplessness often lead to the use of various substances (alcohol, drugs) (Gyarmathy, 2010). These are maladaptive coping strategies.

Two important aspects of the impact of the Covid-19 pandemic and the changes in the school life of socio-culturally disadvantaged children are isolation and lack of resources, which can lead to an escalation of disadvantage (Németh & Rajnai, 2021). To stop the spread of the virus, in spring 2020, in-person education was replaced by remote education, which resulted in

disadvantaged children spending their daily lives away from friends and peers, possibly in solitude. As a result, they often missed out on the one hot meal a day available at school. The inadequate housing conditions - lack of a private room, desk, chairs and peace - in which the children concerned often live are not optimal for quality learning. As they could not receive direct, personal support to effectively master the curriculum, and their necessary skills, affective characteristics such as self-discipline, autonomy, time saving and learning motivation are not always developed and they had to cope with several challenges (Kende, Messing, & Fejes, 2021; Németh & Rajnai, 2021). According to a focus group study by Németh and Rajnai (2021), children living in segregated areas often perceive distance learning as a period of 'not learning.

In addition to being alone, many did not even have the opportunity to connect to the online space or participate in online classes. In this digitalised world, not every household in Hungary has internet access and the appropriate equipment (computer, smartphone, etc.) This unfavourable living condition leads to an escalation of disadvantage, resulting in isolation and a lack of networked communication skills, especially during lockdowns (Németh & Rajnai, 2021; Székely & Aczél, 2018). According to the data of the Central Statistical Office concerning 2017, 79% of households in Hungary have internet access, and almost half of students have access to it on more than one device. However, 55.2% of them can connect to the internet via only one device (Huszti, 2020).

Even if there are tools that enable children to participate in distance education, members of these social groups often lack the skills and abilities to use tools and media. Hence, children often have to cope in the online space without parental support (Engler, Markos, & Dusa, 2021; Németh & Rajnai, 2021).

Overall, the emergence of remote education as a result of Covid-19 has further increased the already significant educational inequality among disadvantaged children in many aspects. As these children often lacked equipment and had no access to the internet, it was impossible to create an optimal learning environment, and they could not get significant help from their parents or siblings to complete their school tasks due to lack of competence (Németh & Rajnai, 2021).

METHODS

The relevance of the topic can be detected in the fact that attitudes towards online education can determine adaptation to various situations and school performance (Józsa & Pasztendorf, 2021).

A retrospective survey was conducted in December 2021, asking students about the first wave of the coronavirus pandemic (March 2020). The study aims to explore the attitudes of 7th and 8th-grade pupils in disadvantaged municipalities towards remote education in the light of the first wave of the coronavirus pandemic, i.e. the first lockdown period, and to identify different sociodemographic, psychological and educational indicators that influence the factors identified.

Accordingly, our research focused on students studying and living in peripheral areas. An international team from the four Visegrad countries developed a questionnaire consisting of 31 blocks of questions covering sociodemographic background, mental health and attitudes toward distance education. Mental health was measured using the Well-being Inventory (WHO Well-being Inventory, Susánszky, Konkoly Thege, Stauder, & Kopp, 2006), the Perceived Stress Scale

(modified based on White, 2014), and the Short Scale of Youth's Social Support (Pluta, Korcz, Krzysztoszek, Bronikowski, & Bronikowska, 2020).

The World Health Organization Well-Being Index (WBI-5) is a short, self-report measure of mental well-being. The instrument measures well-being across five items, where respondents are asked to rate statements on a Likert scale of 0–5, with a raw score recommended being multiplied by 4 (Topp, Østergaard, Søndergaard, & Bech, 2015, p. 168). The instrument can also be used to screen for depression: following the WHO-5 recommendation, the cut-off score is ≤50. Therefore, a score of 50 or less may indicate depression.

The Perceived Stress Scale (PSS) was used to measure stress, which assesses stress levels through eight questions, with statements rated on a 5-point Likert scale. Higher scores indicate higher levels of stress. The abbreviated questionnaire was found to be reliable based on the value of Cronbach's alpha (0.766).

The Short Scale of Youth's Social Support (SSYSS) is an 18-item questionnaire that measures the impact of support received by parents (5 items), peers (8 items) and teachers (5 items) on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). The maximum score available is 25 points for the parent and teacher subscales and 40 points for the peer subscale. The instrument covers the most important environments in which a young person can live. The questionnaire is a widely accepted, accurate and valid measure of social support for young people (Pluta et al., 2020). The reliability of the questionnaire was also adequate in our study (parent support: Cronbach's alpha = 0.818; peer support: Cronbach's alpha = 0.825; teacher support: Cronbach's alpha = 0.835; full questionnaire: Cronbach's alpha = 0.837).

Attitudes towards distance education were measured using a 16-question questionnaire rated on a 5-point Likert scale (Długosz, 2022).

Sample

The study involved 305 primary school pupils living and studying in the peripheral areas of Hajdú-Bihar county. The gender distribution was almost equal (51.5% of boys and 48.5% of girls). In terms of the place of residence, 56.8% of the students live in a municipality with a population of 5,000 or less, and 43.2% live in an urban area with more than 5,000 but less than 20,000 inhabitants. Focusing on disadvantaged children, it can be seen that the educational attainment of parents is typically low; parents with a degree can be seen in the lowest proportion, and below-average educational attainment is typical, especially among fathers (39.0% of fathers had no school leaving certificate or higher, compared to 24.6% of mothers). The vast majority of respondents considered their family's living standard to be average or better (88%), 4.5% said they lived modestly with their family and 6.5% considered their family's financial situation to be very good.

Research questions

In our research, we formulated the following research questions:

1. What kind of attitudes towards distance learning can be identified among students based on the experience of the first wave of the COVID-19 epidemic? Can positive and negative attitudes be distinguished?

2. Which variables have a significant effect on the attitudes toward distance education concerning the sociodemographic background, psychological factors, social support and academic achievement?

Applied statistical methods

Data were analysed using the statistical program SPSS for Windows 22.0. Exploratory factor analysis (Maximum likelihood, Varimax rotation) was used to identify factors, and linear regression analysis was used to examine factors affecting attitudes towards remote education. For each attitude segment, the effects of the variables were examined in four models. In the first model, demographic background variables were included (gender, type of settlement, mother and father's education, objective financial situation of the family, and disadvantaged situation). In the second model, mental health indicators were examined (well-being; peer support - parental, peer, teacher; stress – time-related, physical health-related and mental health-related). In the third model, the impact of support received during distance education was examined, including the amount of support received (how many people helped the student during distance education, including teachers of the different subjects, class teachers, mentors, parents, siblings, classmates, other family members [e.g. grandparents], the internet), the lack of need for help ["I had no problems"] and the lack of help received ["Nobody helped me, although I needed help sometimes"]. Finally, in our fourth model, we examined the role of academic indicators, including indicators of academic achievement (GPA), the number of hours per day spent studying during distance learning, the number of hours per day spent preparing for classes and doing homework during remote education, and the amount of help (measured in hours) given by parents in online learning.

RESULTS

Factors influencing attitudes towards distance learning

Attitudes towards distance education were measured using a 16-question questionnaire, which was rated on a 5-point Likert scale. Using factor analysis (maximum likelihood, Varimax rotation), four dimensions were isolated, as follows:

- *learning difficulties*: summarises learning delays, delays and problems encountered during distance learning,
- *deterioration of health status*: negative changes in physical (health), mental (fatigue and tiredness) and social health (relationships) during the period of distance learning,
- *time saving and safety*: time payoffs (e.g. reduced travel time, fewer study tasks and obligations) and increased sense of security (in terms of contagion compared to traditional education) experienced through distance learning,
- *distance learning preference*: pushing traditional education to the background, preferring the advantage of distance education.

The total explained variance was 51.275%. The questionnaire statements and the content of the constructible factors are illustrated in Table 1.

Table 1. Factors of attitudes towards distance education based on the results of factor analysis

	Factors			
	Learning difficulties	Deterioration of health status	Time saving and safety	Distance learning-preference
During the online lessons, it was difficult for me to focus on what the teachers were saying	**0.876**	0.174	−0.111	−0.069
I could not fully understand the online lessons' material	**0.475**	0.311	−0.193	−0.144
During remote learning, you can cheat and use the help of parents and siblings	**0.395**	0.148	0.094	−0.045
Due to remote learning, I spent too much time at my computer/laptop/tablet/smartphone	**0.353**	0.141	0.077	−0.143
During remote learning my relationship with teachers worsened	0.207	**0.728**	0.053	0.037
During remote learning, my contact with my classmates worsened	0.071	**0.652**	−0.022	−0.068
I was unable to fully participate in the online lessons due to health problems	0.212	**0.416**	−0.134	0.001
During remote learning, other students listened to what I was saying and it made me embarrassed	0.272	**0.382**	0.051	−0.048
During remote learning, I was tired and physically exhausted	0.234	**0.311**	−0.168	−0.162
I didn't have to get ready or travel to school, and I had more time to myself	0.002	−0.26	**0.709**	0.018
Thanks to remote learning, I had more time for my family, classmates and friends	−0.14	−0.136	**0.677**	0.02
Remote learning is safer as I avoid catching COVID-19 at school	−0.01	0.019	**0.427**	0.292
During remote learning, I had fewer learning responsibilities	0.305	0.07	**0.34**	0.106
During remote learning, you can sleep well, you don't need to rush anywhere	0.051	0.066	**0.26**	0.076
I'm used to remote learning, and I don't want to go back to school	−0.145	0.021	0.352	**0.924**
I could learn more while studying at school than at home	0.241	0.179	−0.053	**−0.334**

(PCSET–Preventing Post-Covid Social Exclusion Together)
Source: PCSET 2021; N = 305)

The 16-item scale was developed by an expert group based on the literature (Długosz, 2022). The tool has been proved to be reliable (Cronbach $\alpha_{\text{total}} = 0.693$; Cronbach $\alpha_{\text{learning difficulties}} = 0.655$; Cronbach $\alpha_{\text{deterioration of health status}} = 0.670$; Cronbach $\alpha_{\text{saving and safety}} = 0.620$; Cronbach $\alpha_{\text{distance learning preference}} = 0.758$). The indexes of fitness were also appropriate (KMO = 0.756; Chi-Square = 904.625; df = 120; $P < 001$).

The factors created were recoded to a 100-point scale. The average scores obtained on the recoded scales are illustrated in the figure below.

The highest mean could be seen in the case of the dimension of time saving and safety, followed by distance learning preference and learning difficulties, with health deterioration having the lowest average score for the sample.

The different factors affecting these four dimensions were then examined. For each factor, separate regression models were used to examine the effects of the different factors, as different attitudes towards distance education were expected to have different strengths of effect.

Factors affecting learning difficulties

First, we investigated factors influencing learning difficulties (Table 2). In our first model, we measured the effect of demographic background variables. A significant effect was found only concerning objective financial status ($\beta = -0.204$; $P = 0.028$), indicating a negative impact. This means that better financial status predicts lower levels of learning difficulties. The effect of the other sociodemographic variables is insignificant (gender: $\beta = -0.085$; $P = 0.334$; type of settlement: $\beta = -0.090$; $P = 0.302$; father's education: $\beta = 0.109$; $P = 0.139$; mother's education: $\beta = -0.204$; $P = 0.144$; disadvantaged status: $\beta = 0.055$; $P = 0.531$). Thus, it appears that objective financial situation has a predictive role in the perception of learning difficulties, which is negatively significant, i.e. the worse the objective financial situation of the child's family, the more likely it is to have learning difficulties.

In our second model, psychological variables related to mental health were involved. For the stressors, physical health-related stress emerged as a significant, influential factor ($\beta = 0.324$; $P = 0.007$), indicating a positive relationship. Accordingly, higher levels of physical health-related stress predict higher levels of learning difficulties. Surprisingly, the other stress indicators do not show a significant effect (time-related stress: $\beta = 0.011$; $P = 0.932$; mental health-related anxiety: $\beta = -0.069$; $P = 0.626$), which is also the case for well-being ($\beta = 0.061$; $P = 0.593$) and for the dimensions of peer support (parental support: $\beta = -0.084$; $P = 0.382$; peer support: $\beta = -0.077$; $P = 0.402$; teacher support: $\beta = -0.174$; $P = 0.065$).

In our third model, we examined the impact of the overall help received during distance learning. One might assume that the more places a child received help from, the less learning problems the pupil would have to deal with, but this is not confirmed by the results ($\beta = -0.100$; $P = 0.773$). However, the effect of not helping the child, even if the child sometimes needed it, is insignificant ($\beta = -0.004$; $P = 0.970$), nor is the effect of having no learning problems ($\beta = -0.100$; $P = 0.262$). It should be noted, however, that the effect of physical health-related stress is still significant and negative ($\beta = 0.341$; $P = 0.006$).

Finally, in our fourth model, we measured the role of academic achievement indicators. However, subjective academic achievement (based on GPA) does not seem to have a significant effect on the perception of learning difficulties ($\beta = -0.002$; $P = 0.986$), and the same is true for the time spent studying during remote education ($\beta = -0.079$; $P = 0.383$), the time spent

Table 2. Factors influencing the perception of learning difficulties based on the results of linear regression analysis (Adjusted standardised beta coefficients, PCSET 2021; $N = 305$)

	Model1 (β)	Model2 (β)	Model3 (β)	Model4 (β)
Gender	−0.085	0.030	0.034	0.034
Type of settlement	−0.090	−0.158	−0.175	−0.172
Mother's education	−0.144	−0.148	−0.157	−0.157
Father's education	0.109	0.059	0.056	0.049
Objective financial situation	−0.204*	−0.095	−0.071	−0.049
Disadvantaged situation	0.055	0.028	0.036	0.063
Well-being (WBI)		0.061	0.062	0.059
Parental support (SSYSS)		−0.084	−0.090	−0.083
Peer support (SSYSS)		−0.077	−0.088	−0.096
Teacher support (SSYSS)		−0.174	−0.151	−0.129
Time-related stress (PSS)		0.011	0.005	0.030
Mental health-related stress (PSS)		−0.069	−0.084	−0.095
Physical health-related stress (PSS)		0.324**	0.341**	0.327**
Index of request for help			−0.100	−0.103
Nobody helped even if I needed it sometimes			−0.004	0.006
I did not have any problems			−0.100	−0.099
Academic achievement				−0.002
Number of hours spent learning per day during remote education				−0.079
Number of hours spent preparing for classes and homework per day during remote education				−0.073
Support provided by parents in remote education (hours)				0.072

Note: *$P < 0.05$; **$P < 0.01$

preparing for classes and homework during remote education ($\beta = -0.073$; $P = 0.432$), and the time receiving support from parents ($\beta = -0.072$; $P = 0.442$).

Factors affecting health deterioration

We then examined the factors influencing the perception of health deterioration (Table 3). In our first model, we tested the effect of demographic background variables. A significant negative effect was found for objective financial status $\beta = -0.317$; ($P < 0.001$), i.e. better material status predicts lower levels of health deterioration. Similarly, the disadvantaged situation also showed a significant negative effect ($\beta = -0.226$; $P = 0.007$), so the higher the child's score on the deprivation index, the less likely one has positive attitudes towards poorer health. No significant effect is found concerning gender ($\beta = -0.153$; $P = 0.062$), type of settlement ($\beta = -0.062$; $P = 0.447$), father's education ($\beta = 0.164$; $P = 0.087$) and mother's education ($\beta = 0.012$; $P = 0.896$).

In our second model, we examined the role of psychological variables related to mental health. However, no significant effects could have been detected (well-being: $\beta = -0.035$; $P = 0.746$; parental support: $\beta = 0.001$; $P = 0.995$; peer support: $\beta = -0.056$; $P = 0.515$;

Table 3. Factors influencing the perception of the deterioration of health based on the results of linear regression analysis (Adjusted standardised beta coefficients, PCSET 2021; $N = 305$)

	Model1 (β)	Model2 (β)	Model3 (β)	Model4 (β)
Gender	−0.153	0.001	0.008	0.013
Type of settlement	−0.062	−0.077	−0.102	−0.092
Mother's education	0.012	0.025	0.012	0.002
Father's education	0.164	0.082	0.076	0.098
Objective financial situation	−0.317***	−0.220*	−0.191*	−0.196*
Disadvantaged situation	−0.226**	−0.275**	−0.261**	−0.244**
Well-being (WBI)		−0.035	−0.034	−0.025
Parental support (SSYSS)		0.001	−0.005	0.000
Peer support (SSYSS)		−0.056	−0.065	−0.088
Teacher support (SSYSS)		−0.060	−0.007	0.003
Time-related stress (PSS)		0.103	0.092	0.107
Mental health-related stress (PSS)		0.120	0.104	0.093
Physical health-related stress (PSS)		0.150	0.184	0.187
Index of request for help			−0.156	−0.152
Nobody helped even if I needed it sometimes			0.030	0.051
I did not have any problems			−0.116	−0.102
Academic achievement				−0.028
Number of hours spent learning per day during remote education				0.080
Number of hours spent preparing for classes and homework per day during remote education				−0.024
Support provided by parents in remote education (hours)				0.123

Note: $^{*}P < 0.05$; $^{**}P < 0.01$; $^{***}P < 0.001$

teacher support: $\beta = -0.060$; $P = 0.493$; time-related stress: $\beta = 0.103$; $P = 0.390$; mental health-related stress: $\beta = 0.120$; $P = 0.366$; physical health-related stress: $\beta = 0.150$; 0.176). In the model, the effects of the objective financial situation ($\beta = -0.220$; $P = 0.014$) and disadvantaged situation ($\beta = -0.275$; $P = 0.001$) remain significant.

In our third model, we measured the impact of the support received through remote education. However, as in the previous model, no significant impacts were detected (overall indicator for asking for help: $\beta = -0.156$; $P = 0.073$; no one helped me, although I sometimes needed help: $\beta = 0.030$; $P = 0.728$; I had no problems: $\beta = -0.116$; $P = 0.159$). The significant effect of the objective financial situation ($\beta = -0.191$; $P = 0.035$) and disadvantage ($\beta = -0.262$; $P = 0.002$) was still detected.

Finally, in our fourth model, we included the academic achievement indicators. However, the results show that the effect of subjective academic performance on attitudes towards health deterioration is not significant ($\beta = -0.028$; $P = 0.756$), which is also true for the time spent studying during remote education ($\beta = 0.080$; $P = 0.335$), the time spent preparing for classes and doing homework during remote education ($\beta = -0.024$; $P = 0.779$), and the time spent

receiving study-related assistance from parents ($\beta = 0.123$; $P = 0.156$). The significant effect of objective financial situation ($\beta = -0.196$; $P = 0.035$) and disadvantage ($\beta = -0.244$; $P = 0.005$) did not change.

Factors affecting time saving and safety

Next, the different factors affecting attitudes toward time saving and safety were examined (Table 4). It was found that the role of the sociodemographic background variables included in the first model was not significant (gender: $\beta = 0.152$; $P = 0.084$; type of settlement: $\beta = -0.061$; $P = 0.483$; father's education: $\beta = 0.093$; $P = 0.937$; mother's education: $\beta = 0.008$; $P = 0.365$; objective financial situation: $\beta = 0.084$; $P = 0.361$; disadvantaged situation: $\beta = -0.098$; $P = 0.269$).

Regarding the psychological variables related to mental health in our second model, we found that the role of support received from teachers is prominent, with a significant positive effect ($\beta = 0.210$; $P = 0.029$). Accordingly, the support from teachers is able to predict positive perceptions of time saving and safety positively. However, the effect of parental support ($\beta = -0.097$; $P = 0.332$) or peer support ($\beta = 0.173$; $P = 0.069$) is insignificant. The effect of

Table 4. Factors influencing the perception of time-saving and safety based on the results of linear regression analysis (Adjusted standardised beta coefficients, PCSET 2021; $N = 305$)

	Model1 (β)	Model2 (β)	Model3 (β)	Model4 (β)
Gender	0.152	0.171	0.133	0.120
Type of settlement	−0.061	−0.065	−0.054	−0.077
Mother's education	0.008	0.008	0.008	0.015
Father's education	0.093	0.095	0.124	0.108
Objective financial situation	0.084	0.054	0.061	0.088
Disadvantaged situation	−0.098	−0.077	−0.082	−0.119
Well-being (WBI)		−0.110	−0.124	−0.134
Parental support (SSYSS)		0.097	0.098	0.104
Peer support (SSYSS)		0.173	0.140	0.153
Teacher support (SSYSS)		0.210*	0.095	0.107
Time-related stress (PSS)		−0.041	0.004	0.003
Mental health-related stress (PSS)		−0.039	−0.077	−0.087
Physical health-related stress (PSS)		0.076	0.027	−0.003
Index of request for help			0.071	0.091
Nobody helped even if I needed it sometimes			−0.265**	−0.269***
I did not have any problems			0.050	0.034
Academic achievement				0.132
Number of hours spent learning per day during remote education				0.012
Number of hours spent preparing for classes and homework per day during remote education				−0.073
Support provided by parents in remote education (hours)				−0.110

Note: $^{*}P < 0.05$; $^{**}P < 0.01$; $^{***}P < 0.001$

well-being ($\beta = -0.110$; $P = 0.348$) and of each stress indicator (time-related stress: $\beta = -0.041$; $P = 0.753$; mental health-related stress: $\beta = -0.039$; $P = 0.787$; physical health-related stress: $\beta = 0.076$; 0.531) was also not significant.

In our third model, we also examined the impact of learning support. In addition to the neutral effect of sociodemographic variables, the role of peer support variables described in the previous model is weakened. The overall help received was not found to be significant ($\beta = 0.071$; $P = 0.446$), nor was the absence of problems a predictor of a significant effect ($\beta = 0.050$; $P = 0.572$), but the role of not receiving help (when one would otherwise have needed it) was significant ($\beta = -0.265$; $P = 0.005$). This has a significant negative effect on attitudes towards time-saving and safety, i.e. the more a young person experiences the absence of help, the less time saving and security they experience.

Finally, in our fourth model, we included academic achievement indicators. As before, the role of subjective academic achievement is not significant ($\beta = 0.132$; $P = 0.167$), as is the role of time spent studying during remote education ($\beta = 0.012$; $P = 0.894$), time spent preparing for classes and doing homework during remote education ($\beta = -0.073$; $P = 0.430$), and the duration of learning assistance provided by parents ($\beta = -0.110$; $P = 0.323$).

Factors affecting distance learning preference

Finally, the factors influencing distance learning preference were examined (Table 5). Based on the first model, the effect of sociodemographic background variables alone is not significant (gender: $\beta = 0.139$; $P = 0.113$; type of settlement: $\beta = -0.162$; $P = 0.063$; father's education: $\beta = -0.131$; $P = 0.196$; mother's education: $\beta = -0.010$; $P = 0.921$; objective financial situation: $\beta = -0.002$; $P = 0.9811$; disadvantaged situation: $\beta = -0.143$; $P = 0.105$).

Concerning the psychological variables related to mental health in our second model, we found that the role of support received by teachers is significantly negative ($\beta = -0.241$; $P = 0.010$), i.e. higher levels of support from teachers lead to lower levels of distance learning preference. However, the effect of peer support was not significant ($\beta = 0.072$; $P = 785$), nor was parental support ($\beta = 0.008$; $P = 0.932$). No significant effect was found concerning well-being ($\beta = -0.057$; $P = 0.615$). For each stress indicator, the role of time-related stress was significant ($\beta = -0.414$; $P = 0.001$), i.e. higher time-related stress results in lower distance learning preference. A trend effect was observed for mental health-related stress ($\beta = 0.274$; $P = 0.051$) and physical health-related stress ($\beta = 0.204$; $P = 0.081$), both assuming a positive effect. This suggests that higher mental and physical health-related stress is associated with higher distance learning preferences. Also, the impact of gender became significant positive ($\beta = 0.281$; $P = 0.008$), meaning that boys have a higher preference toward distance learning. Also, the impact of the type of settlement became significant negative ($\beta = -0.234$; $P = 0.009$), indicating that pupils learning in bigger settlements have worse attitudes toward distance learning preference.

In our third model, we looked at the role of overall support received during distance learning. The overall help received was not significant in this case ($\beta = 0.070$; $P = 0.447$), nor was the role of the absence of problems ($\beta = 0.044$; $P = 0.304$) and the absence of assistance ($\beta = 0.091$; $P = 0.632$). The effect of the sociodemographic variables presented in the previous model was maintained (gender: $\beta = 0.282$; $P = 0.005$; type of municipality: $\beta = -0.222$; $P = 0.012$), as was teacher support ($P = 0.023$). In terms of stressors, in addition to the previously significant effect of time-related stress ($\beta = -0.414$; $P = 0.002$), mental health-

Table 5. Factors influencing the perception of distance learning preference based on the results of linear regression analysis (Adjusted standardised beta coefficients, PCSET 2021; $N = 305$)

	Model1 (β)	Model2 (β)	Model3 (β)	Model4 (β)
Gender	0.139	0.281**	0.282**	0.288**
Type of settlement	−0.162	−0.234**	−0.222**	−0.209**
Mother's education	0.010	−0.004	0.003	0.002
Father's education	0.131	0.128	0.127	0.132
Objective financial situation	−0.002	0.102	0.079	0.065
Disadvantaged situation	0.143	0.098	0.092	0.109
Well-being (WBI)		−0.057	−0.056	−0.052
Parental support (SSYSS)		0.008	0.015	0.013
Peer support (SSYSS)		0.072	0.087	0.083
Teacher support (SSYSS)		−0.241*	−0.239*	−0.247*
Time-related stress (PSS)		−0.414*	−0.414**	−0.416**
Mental health-related stress (PSS)		0.274	0.292*	0.298*
Physical health-related stress (PSS)		0.204	0.199	0.214
Index of request for help			0.070	0.061
Nobody helped even if I needed it sometimes			0.044	0.043
I did not have any problems			0.091	0.098
Academic achievement				−0.058
Number of hours spent learning per day during remote education				−0.020
Number of hours spent preparing for classes and homework per day during remote education				0.046
Support provided by parents in remote education (hours)				0.042

Note: *$P < 0.05$; **$P < 0.01$

related stress also increased to a significant effect ($\beta = 0.292$; $P = 0.041$), with the former having a negative effect and the latter a positive impact.

Finally, in our fourth model, we included academic achievement indicators, but there was no detectable effect of any of the variables related to academic performance on this factor (subjective academic achievement: $\beta = -0.058$; $P = 0.544$; time spent studying during remote education: $\beta = -0.020$; $P = 0.824$; time spent preparing for classes and homework during remote education: $\beta = 0.046$; $P = 0.620$; time spent receiving help from parents with learning: $\beta = 0.042$; $P = 0.652$). The effects of the above sociodemographic (gender: $\beta = 0.288$; $P = 0.005$; type of municipality: $\beta = -0.209$; $P = 0.023$) and mental health indicators (teacher support: $\beta = -0.247$; $P = 0.023$; time-related stress: $\beta = -0.416$; $P = 0.002$; mental health-related stress: $\beta = 0.298$; $P = 0.042$) did not change.

DISCUSSION

Our research aimed to explore attitudes towards distance education and the factors influencing them. Four factors were identified concerning attitudes towards distance education. Learning

difficulties include learning problems, workload, difficult tasks and concentration problems caused by online education. Reduced health refers to health-related problems caused by the pandemic and lockdowns, which integrate characteristics specific to crises (Hajduska, 2008). The time-saving and safety factor highlights the positive benefits of the pandemic and online education, the time saving benefits enabled by remote education and the health-protective benefits. Finally, the factor of distance learning preference refers to the appreciation of online education's benefits and positives and preferences compared to traditional education. Thus, for our first research question the answer is yes, as several sets of attitudes (two positives and two negatives) towards distance education can be distinguished. Based on the mean values of the factors, we can see that the time-saving and safety factor is the most characteristic of the sample, suggesting that students found the positive side of the fundamentally negative situation by turning disadvantage into a quasi-advantage, which is of paramount importance for mental health and coping (Nagy et al., 2021). The relatively high value of distance learning preference suggests that learners may be more inclined to switch to a sustained period of online education, which may be beneficial in some cases. At the same time, it draws attention to the potential negative perception of traditional education, which may increase the risk of drop-out in the long term. The average scores for the learning difficulties factor were ranked third in the sample, suggesting that learners faced fewer serious learning-related problems. The health deterioration factor was the least significant, which is positive in that, despite the deterioration in health, which is a fundamental characteristic of a crisis, pupils were less likely to face physical and mental health problems.

Examining factors influencing attitudes towards distance education revealed various results, only partially answered our second research question. Few factors with significant effects were found concerning demographic background variables. Although research highlights the positive effect of higher parental education (Kovács, 2020), this was not detected for attitudes toward distance education in the present sample. Accordingly, higher parental education does not have a protective effect on negative attitudes toward education. Education alone does not determine attitudes towards distance education, despite the positive effect of higher parental education on academic persistence in traditional education (Kovács, 2018). The effect of gender was found to be significant for distance learning preference since, although no significant effect was detected per se, the inclusion of variables measuring health, support and study characteristics revealed a higher probability of distance education preference for boys. This is in line with previous research showing that girls have more positive attitudes toward studies (Szabó et al., 2021). The results also suggest that they seem more optimistic and more at ease with obstacles to remote education. The effect of the type of settlement, similar to gender, only emerged concerning distance learning preference and only when the outcome variables were included, suggesting that those living in larger settlements have lower distance learning preferences. This may be because children living in larger settlements may have had more negative experiences, found it more difficult to maintain physical contact compared to their peers living in smaller settlements, or may have been threatened by a long period of distance education in terms of their educational aspirations. The disadvantaged situation showed a significant negative effect only for perceptions of health deterioration, confirming previous findings in the literature on the role of deprivation in hindering health outcomes (Daw et al., 2015; Libiczki & R. Fedor, 2022). Children and families from deprived backgrounds are at greater risk due to typically poorer general health; thus, the impact of a minor risk of illness may be more severe. Therefore,

monitoring the health status of disadvantaged children and families, both in traditional educational settings and distance education, needs to be emphasised but requires ongoing contact with the families concerned. The significant negative impact of objective financial status was found in perceptions of learning difficulties and deteriorating health, which is also in line with previous research (Kovács, 2020; Széll, 2015). This is well related to the aforementioned characteristics of disadvantage, as, in practice, these phenomena often go hand in hand.

The effects of well-being, social support and stress were examined regarding mental health indicators. However, there were few significant impacts, again only partially answered our preliminary research. The role of well-being was found to be negligible, as was the role of peer support from parents and peers. This result may be surprising when one considers that higher levels of well-being have a fundamentally positive effect on academic achievement and related attitudes, which in turn has a positive impact on well-being and self-esteem (Kovács, Dan, et al., 2022). However, it appears that the experience of remote education is not related to well-being or possibly the trigger of remote education itself, and the effect of the COVID-19 pandemic may mask the effect of well-being on education. The same reasoning can be assumed concerning peer support. However, teacher support was found to be significant for perceptions of time saving and safety and for distance learning preference. In the former case, we can see a positive effect, i.e. a higher level of support from teachers leads to increased time saving skills and perceptions of safety. In the latter case, however, there is a negative effect, i.e. higher teacher support leads to lower distance learning preference, which is not surprising in the sense that if the learner has access to adequate support during the studies, this will shift one's attitudes towards learning in a positive direction. In the case of distance education, teachers appear to have played a key role in shaping students' perceptions of and attitudes toward learning. Although the learning process was shifted from school to children's homes, the role of support from parents was not the most dominant one, but rather from teachers. The results suggest that children whose teachers provided adequate support could remain persistent and positive about continuing their studies. The role of teachers is therefore indispensable concerning online learning processes (Kovács, Szabó, Győri, & Godó, 2022). The effect of physical health-related stress was significant in relation to learning difficulties, suggesting that higher levels of concern for physical health contribute to higher levels of study-related problems. The negative effect of time-related stress on distance learning preference is also apparent, whereby higher time-related stress experience leads to lower distance learning preference. Therefore, the negative effect of anxiety and stress can also be detected in distance education.

We then examined the impact of the overall support received, for which we were also able to provide partial answered of our research questions. Unsurprisingly, if the child feels not receiving help when needed, it may negatively affect the pupil's perceptions of time-saving and safety, as they may feel that they are developing more slowly than they should. Thus, the lack of support may affect one's sense of safety and self-esteem (Gyarmathy, 2010). However, no other significant effect was found for the help variables. Compared to the results obtained in terms of peer support discussed earlier, it seems that the amount of support is not decisive in the process. However, the support provided by certain individuals, in this case, emphasises the role of teachers. At the same time, the environment must monitor the learner's behaviour and attitudes since it is necessary to detect the need, which, if not met, will lead to a negative change in the child's sense of safety and attitudes.

Finally, the role of academic indicators was examined. However, the results suggest the GPA, the number of hours per day spent learning during distance learning, and the number of hours spent preparing for classes and doing homework during distance learning. The role of parental assistance in online learning is not outstanding in attitudes towards distance learning. This may suggest that the learning characteristics of distance education have not changed significantly compared to the traditional educational situation before the pandemic. It is questionable what might be behind this since the teaching methods and the tools and platforms used are significantly different from those used in traditional education. However, it is also worth noting that evaluation methods have necessarily changed, which may have contributed to the neutral effect of these variables.

Overall, attitudes towards distance learning are complex, integrating positive and negative components. The factors influencing them partly follow the trends of the factors that influence perceptions of traditional education, but it is necessary to stress that the COVID-19 pandemic, which is at the root of remote education, also enhances the role of components such as peer support, certain stress components or even the disadvantage itself, due to its crisis-like nature. These segments need to be highlighted, and, in case of a similar crisis, prevention and intervention strategies should be given special attention by focusing on these factors.

As the changes brought about by the epidemic have intensified the disconnection of disadvantaged people from society, increased attention from professionals is needed in terms of mental and psychological support. Below I would like to present some strategies and intervention points that can be applied in practice.

In educational institutions, the school psychologist can alleviate exclusion and the resulting stress by providing individual and group counselling and training, leading to an increase in psychological well-being (Arslan, 2018; Baumeister & Leary, 1995; cited in Kovács, Dan, et al., 2022).

It is also worth involving parents in the supporting process to develop communication skills that will help them to ensure their child's mental well-being and balance. An appropriate and active relationship between parents and school will strengthen the child's motivation to learn and increase academic achievement (Kovács, Dan, et al., 2022). In addition to parents, it is important to support teachers, as they are involved in the lives of children as models. If they approach children with appropriate openness, acceptance and fairness, it helps disadvantaged children to flourish in the community (Kovács, Dan, et al., 2022).

A further important and very useful step could be the introduction of peer mentoring (Godó, 2021; Jacobi, 1991). Peer mentoring is a mutual and continuous relationship between mentor and mentee, based on cooperation, which allows both to develop. The parties involved in mentoring can be of different ages but also the same age. Like education, mentoring can take place in the online space. Mentoring can provide specific help with the learning process and learning methods. However, it can also be a personal relationship that is supportive and can reduce the negative feelings, insecurities and anxieties of the mentored person and help them develop as a person (Harvey, McIntyre, Hemes & Moeller, 2009; cited in Bencsik & Juhász, 2017; cited in Godó, 2021).

Incorporating these practices into everyday life, in cooperation with professionals from different fields (psychologists, social worker, speech therapists, physiotherapists, etc.), can significantly contribute to the psychological and mental well-being of disadvantaged children (and their parents).

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