



Parental involvement in children's homework during the COVID-19-related remote education: the role of parental motivational beliefs and emotions

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KEYWORDS

Parental homework involvement
Parents' self-efficacy
Parents' online technologies efficacy
Parents' beliefs of child's efficacy
Parents' emotions

ABSTRACT

The remote education during the COVID-19 pandemic was a novel educational situation for children and parents. The study investigated (1) changes in parental involvement in children's homework (autonomy support, control, and interference) during school closure, and (2) parents' motivational (self-efficacy, beliefs of child's efficacy, online technologies self-efficacy) and emotional variables (positive and negative emotions) as predictors of parental involvement in homework. A sample of 127 parents of elementary school children completed an online questionnaire. The results showed that control and interference in children's homework increased significantly during COVID-19-related remote education. Parents' self-efficacy to help children succeed at school positively predicted parental autonomy support and control before and during the pandemic. However, during the pandemic, autonomy support was additionally predicted by parents' positive emotions (marginally) and control by their beliefs of their child's efficacy. Parents' negative emotions predicted parental interference at both periods. The study enhances our understanding of parental involvement during COVID-19 and offers practical insights for supporting children's homework during future crises.

Participación parental en las tareas escolares durante la educación a distancia relacionada con la COVID-19: el papel de las creencias motivacionales y las emociones parentales

PALABRAS CLAVE

Participación de los progenitores en las tareas escolares
Autoeficacia de los progenitores
Eficacia de los progenitores en el uso de tecnologías en línea
Creencias de los progenitores sobre la eficacia de los hijos/as
Emociones de los progenitores

RESUMEN

La educación a distancia durante la pandemia de COVID-19 representó un reto para progenitores y escolares. Este estudio analizó (1) los cambios en la implicación parental en las tareas escolares (apoyo a la autonomía, control e interferencia) durante la suspensión de clases presenciales, y (2) factores motivacionales (autoeficacia parental, creencias sobre la eficacia del hijo y la hija, autoeficacia en línea) y emocionales (emociones positivas y negativas) asociados. Participaron 127 progenitores de alumnado de Educación Primaria mediante un cuestionario online. Los resultados mostraron un aumento significativo del control y la interferencia durante la pandemia. La autoeficacia parental predijo el apoyo a la autonomía y el control antes y durante este periodo. Además, el apoyo a la autonomía mostró una relación débil con las emociones positivas, y el control se asoció con las creencias sobre la eficacia del escolar. Las emociones negativas predijeron la interferencia en ambos momentos. El estudio amplía el conocimiento sobre la implicación parental en contextos de crisis y ofrece orientaciones prácticas para futuras situaciones similares.

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The contribution of parental involvement in children's homework to their learning and educational progress is widely recognized, despite conflicting evidence in the literature that emphasizes the quality rather than the quantity of parental involvement (e.g., Barger et al., 2019; Boonk et al., 2018; Núñez et al., 2015). Two main types of parental homework involvement are commonly distinguished in the literature: autonomy-supportive and controlling ones (Falanga et al., 2023; Gonida & Cortina, 2014; Hoover-Dempsey et al., 2001). Autonomy support refers to parental behaviors that foster children's independence, validate their perspectives, offer choices, and promote decision-making during homework tasks (Hoover-Dempsey et al., 2001; Pomerantz et al., 2005), while controlling involvement includes practices such as pressuring children to achieve results, using rewards or punishments, or closely supervising without considering the child's needs (Falanga et al., 2023; Gonida & Cortina, 2014). Gonida and Cortina (2014) have also identified interference as an overinvolving controlling type during homework that goes beyond control. Specifically, interfering parents tend to override the child's initiatives, directly solve problems or correct mistakes intrusively, which may hinder the development of autonomy and competence.

Empirical evidence has consistently shown that autonomy support is associated with the most adaptive learning outcomes for children, such as greater intrinsic motivation, higher academic engagement, and better emotional well-being, whereas parental control and interference have been associated with maladaptive outcomes such as increased anxiety, lower academic self-concept, and reduced autonomy (Falanga et al., 2022; Gonida & Cortina, 2014; Pomerantz et al., 2005; Tunkkari et al., 2021b).

Parents' involvement has been associated with their beliefs about their child's academic competence, their efficacy beliefs to support their child succeed in school, as well as with their emotions during homework (Falanga et al., 2023). Specifically, when parents consider their children to be more competent in the homework context (Shi et al., 2024; Tunkkari et al., 2021b), they tend to be more autonomy-supportive in their involvement; conversely, if they perceive their child as being less competent, they may become more involved in a controlling way (Falanga et al., 2023; Shi et al., 2024; Silinskas et al., 2015; Tunkkari et al., 2021b). Nevertheless, according to Falanga et al (2022), parents questioning their children's efficacy may also lead to teaching them self-regulation and metacognitive learning strategies (i.e., self-reflection, connecting theory and practice, etc.) to support their homework independence in the long run. Moreover, when parents believe that they are competent enough to promote their child's school success, they are more likely to provide autonomy support, maintain a positive emotional climate during homework, and adopt more constructive involvement strategies. In contrast, parents with lower self-efficacy may rely on more controlling or interfering behaviors, often driven by anxiety or frustration (Falanga et al., 2023; Green et al., 2007).

Parents experience a broad range of emotions while involved in their child's homework, including both positive emotions such as enjoyment and pride, and negative ones such as frus-

tration and anxiety (Pomerantz et al., 2005). Parents' positive emotions are more likely to predict their autonomy support during homework involvement, whereas parents' negative emotions are more likely to predict controlling practices (Tunkkari et al., 2021b). The study by Pomerantz et al. (2005) showed that the positive affect expressed by mothers buffered the negative effects of negative affect and helplessness in children, especially for those most academically and emotionally vulnerable. However, Falanga et al. (2023) found that both positive and negative affect predicted controlling parental behaviors and mediated the relationship between parental efficacy beliefs (both self-efficacy and beliefs of the child's efficacy) and involvement types. If it is considered that supporting children's autonomy and self-regulated learning is usually more demanding and requires specific knowledge compared to controlling practices, parents' repertoire of involvement strategies may likely include primarily controlling practices, ranging from mild forms of supervision to more intrusive control such as interference.

Parental involvement in children's homework during the COVID-19 pandemic

The COVID-19 pandemic introduced an extraordinary educational context compared to normalcy; remote education was imposed, and families were required to intensify their involvement in their children's education under stressful, uncertain, and frequently under conditions without the necessary technological resources. This unprecedented educational disruption required parents to undertake more active roles as co-educators at home (Panaoura, 2020) and offered a unique opportunity to examine potential changes in how parents were involved in their children's homework during the pandemic compared to the pre-COVID period.

An intensified involvement in homework was more evident in primary school students, as their limited autonomy and digital skills increased their need for guidance (Panaoura, 2020; Suárez et al., 2022). During confinement, many parents devoted more time to supporting their children's learning but also reported heightened stress levels, family tensions, and feelings of inadequacy (Panaoura, 2020; Suárez et al., 2022). Support from schools was often insufficient, (Thorell et al., 2022), leaving many parents overwhelmed and underprepared.

Although studies on parental homework involvement during the pandemic are limited, the emotional aspects of parents' increased involvement were identified. Suárez et al. (2022) found that, during confinement in Spain, family stress and conflicts derived from homework increased parents' emotionally reactive involvement. That is, even when parents intended to help, emotional strain often resulted in less constructive strategies. Mocho et al. (2024), who studied parental involvement in school and children's quality of life during the pandemic in Portugal, indicated that the authoritative parental style, characterized by affection, communication, and autonomy promotion, not only enhanced the quality of parental involvement, but also positively influenced parents' perceptions of their children's quality of life during confinement. In their study during school

closure in the Netherlands, De Jong et al. (2021) found the key role of mothers' self-efficacy beliefs in helping their child with schoolwork (parents' teaching self-efficacy). Parents' teaching self-efficacy, child motivation for schoolwork, and emotional support was found to predict parent-child conflict. Specifically, high parental teaching self-efficacy was associated with lower mother-child conflict during homework, even when controlling for prior parent-child conflict.

Digital access and technological competence emerged as critical factors during emergency remote education (Vincent-Lancrin et al., 2022). Parents with higher technological self-efficacy reported lower stress levels and a greater perceived ability to support their children (So et al., 2022; Vogel et al., 2023). However, digital media self-efficacy during school closure, that is, the extent to which one believes one can successfully operate digital media, predicted parent perceptions of their child's achievement and general satisfaction with digital home-based learning, but not the parental involvement behaviors such as providing instruction and school material, monitoring child's homework and being emotionally supportive. Only the warmth dimension of the digital parenting style (Benedetto & Ingrassia, 2020), that is, parents' support to create a safe and respectful digital environment based on their children's needs, and parents' self-efficacy beliefs to support their child do well in school predicted involvement practices (So et al., 2022).

The above summary indicates the limited research regarding the psychological processes behind parents' involvement in homework during this emergency educational context. In other words, it does not know whether parents continued to get involved in their children's homework in the same way as before the pandemic, which factors predicted more autonomy-supportive or more controlling types of homework involvement during remote education or whether the factors behind these types of involvement remained also the same.

In Greece the educational situation was similar to the international experience with respect to the disruptions caused by COVID-19 confinement measures (Mocho et al., 2024; Panaoura, 2020; Suárez et al., 2022; Thorell et al., 2022). The period from the spring of 2020 to early 2021 was marked by successive lockdowns that profoundly transformed the educational process, leading to a nationwide shift from face-to-face schooling to remote education. During this period, the Ministry of Education issued guidelines for online instruction and the use of digital platforms such as e-class and e-me, as well as tools like Cisco Webex, to support synchronous and asynchronous communication and teaching. Parents were asked to provide their children with the necessary technological resources for e-learning at home and to practice a wide repertoire of newly acquired online technology skills and homework involvement practices, ranging from creating passwords for different digital platforms to supporting children in accessing, processing, and submitting homework to teachers. Many parents faced substantial challenges in coping with uncertainties (e.g., scarce guidance from schools), limited or inadequate technological equipment—particularly in families with more than one school-aged child—and insufficient expertise, while simultaneously balancing their own

teleworking responsibilities and household demands within the broader context of family life. The present study, carried out in the Greek cultural context, is expected to contribute to existing international knowledge regarding parental homework involvement during school closures due to COVID-19 by shedding light to the quality of parental homework involvement and relationships with various parent motivational and emotional variables, clarify the impact of the pandemic in the Greek educational context, and provide recommendations for adaptive parental homework involvement in times of crisis.

The present study

The study intended to extend the literature regarding the frequency and quality of parents' involvement in children's homework during the COVID-19 distance learning. The study aimed to examine how parents perceived changes in the quality of their homework involvement (autonomy support, control, and interference) before and during pandemic-related remote education. In addition, the study aimed to explore various parents' motivational and emotional variables (i.e., parents' self-efficacy beliefs to support their children succeed academically, beliefs of child's efficacy, online technologies self-efficacy beliefs, and parents' emotions before and during the COVID-19-related remote education) as predictors of parental involvement types for the pre-pandemic and remote education periods, based on parents' retrospective and current reports, respectively. Primary school children's parents were chosen due to their typically greater parental involvement (Patall et al., 2008; Viljaranta et al., 2018) and the comparatively lower technological proficiency of younger students compared to their older peers.

Regarding the study's hypotheses, first, it was hypothesized that there would be significant differences in the frequency of parental homework involvement before and during the shift to COVID-19 remote education. Although no specific hypothesis was set on parental involvement quality due to a lack of prior evidence, an increase in controlling involvement—based on parents' retrospective reports for the pre-pandemic period and their current reports during pandemic-related remote education—was possible due to the challenges related to distance learning (e.g., children's limited digital competence, family stress and conflict, etc., Suárez et al., 2022). Second, though a lack of prior evidence made formulating specific hypotheses difficult, it was hypothesized that different motivational and emotional variables would predict the three types of parental involvement in children's math homework before and during the COVID-19-related remote education, according to parents' retrospective and current reports.

Method

Participants

The sample included 127 parents (104 mothers, 81.9%) of children attending the third ($n = 30$, aged 8-9 years), fourth ($n = 35$, 9-10 years), fifth ($n = 25$, aged 10-11 years) and sixth

($n = 37$, aged 11-12 years) grade of primary school. The exact same number of parents reported on all instruments; no missing data were observed. Among children, 70 were girls (55.1%). Most parents were aged 41-50 years (60.6%) and 31-40 years (33.1%), fewer were below 30 (2.4%) or above 51 years (3.9%). Most parents had finished university (39.4%) or postgraduate studies (29.1%), while the rest had post-secondary education (7.9%), senior high school (14.2%), or lower education (5.5%). Parents' educational level was unspecified for 3.1%.

Instruments

Parents were asked to respond to questionnaires measuring their involvement in their children's homework, their motivational beliefs (self-efficacy beliefs, beliefs of their child's efficacy, online technologies self-efficacy beliefs), and their emotions (positive and negative) related to children's homework. For all instruments, answers were given on a 5-point Likert-type scale.

Two questionnaire forms were used to assess parental involvement in children's math homework and parents' positive and negative emotions both before and during COVID-19-related distance learning. Parents reported on their involvement practices and emotions during distance learning (lockdown) and provided retrospective reports for the pre-COVID-19 remote education period respectively. In contrast, parental self-efficacy and beliefs about children's efficacy were treated as general constructs and were measured only during the period of remote education.

This was an intentional methodological choice, informed by previous research indicating that parental homework involvement and related emotional variables (e.g., time spent on homework tasks, family stress, and conflict; Suárez et al., 2022) may vary on account of school closures and the transition to remote education during the COVID-19 pandemic. Conversely, parents' efficacy beliefs regarding their own and their children's abilities are primarily shaped by relatively stable factors (e.g., personal or vicarious experiences, verbal persuasion concerning the value of parental involvement) and are thought to support sustained parental involvement in the face of challenges (Hoover-Dempsey & Sandler, 1995). Consistent with Social Cognitive Theory (Bandura, 1989), which conceptualizes efficacy beliefs as proximal determinants of behavior in demanding situations, parental homework involvement before and during pandemic-related distance learning was examined as an outcome associated with efficacy beliefs. Finally, parents' online technologies self-efficacy beliefs –assessed during the COVID-19 distance learning period– were also examined as predictors of parental homework involvement within this specific timeframe.

Parental involvement in children's homework. The online questionnaire was previously developed by Gonida & Cortina (2014) to assess the homework involvement types of autonomy support, control, and interference (22 items). Two forms of the questionnaire administered during COVID-19-related remote education, assessed parental involvement in children's math

homework retrospectively for the period before and currently for the period during distance learning. The autonomy support scale assessed parent encouragement of the child's autonomy and self-regulation relative to homework tasks (e.g., provision of examples, self-reflection etc.), (8 items, e.g., "How often do you ask your child to describe to you the way s/he has solved the exercise in order to facilitate him/her to understand her/his mistake?"). The control scale measured parent pressure such as strict supervision and monitoring of homework completion and mistakes in homework tasks (7 items, e.g., "How often do you take your child's book in order to check whether s/he has done her/his exercises according to the book or the teacher's instructions?"). The interference scale assessed parent intrusion and overinvolvement in homework, such as providing unrequested help (7 items, e.g., "How often do you yourselves do your child's homework and ask him/her to learn it by heart?"). Cronbach reliability values were $\alpha = .89/.9$ for control, $\alpha = .8/.86$ for autonomy support, and $\alpha = .66/.77$ for interference, before and during the COVID-19-related distance learning period, respectively.

Parents' self-efficacy beliefs. The scale of *Parental Self-Efficacy for Helping the Child Succeed in School* (Walker et al., 2005) was adjusted to assess parents' efficacy to support their children succeed in mathematics (7 items, e.g., "I make a significant difference in my child's math performance"). Cronbach reliability value was $\alpha = .79$.

Parents' beliefs of child's efficacy. The self-efficacy scale from *Motivated Strategies for Learning Questionnaire* (Pintrich & De Groot, 1990) was adjusted to examine parent beliefs of their child's efficacy in mathematics (9 items, e.g., "Compared with other students in his/her class, I'm sure my child can do an excellent job on the problems and tasks assigned for this class"). Cronbach reliability value was $\alpha = .92$.

Parents' online technologies self-efficacy beliefs. The *Online Technologies Self-Efficacy Scale* (Miltiadou & Yu, 2000) assessed parents' self-efficacy beliefs with communication technologies such as Internet, e-mail, and computer synchronous and asynchronous conferencing (29 items, e.g., "I would feel confident posting a new message to an asynchronous conference system"). Cronbach reliability value was $\alpha = .98$.

Parent emotions. A scale based on the *Positive and Negative Affective Schedule* (Watson et al., 1988) was adjusted to measure parents' emotions related to children's math homework. Parents answered the scale once during remote education, providing retrospective reports for the pre-COVID-19 remote education period and current reports for the remote education period. Parents reported how much they experienced ten emotions while getting involved in their child's homework (5 positives, i.e., enjoyment, joy, relief, pride, satisfaction; and 5 negatives, i.e., sadness, anger, worry/anxiety, boredom, disappointment). Cronbach alpha reliability values were $\alpha = .85/.87$ and $\alpha = .87/.88$ for parents' positive and negative emotions before and during COVID-19-related remote education, respectively.

Procedure

The research took place during school closure due to COVID-19 confinement in the school years 2019-2020 and 2020-2021. Specifically, data were collected during the spring and fall of 2020, encompassing the initial lockdown in the spring and the successive lockdowns in the fall, a period marked by extensive pandemic outbreaks (e.g., various SARS-CoV-2 variants) and related restrictions, such as school closures and the transition to remote instruction. Parents were recruited via an e-mail sent through their children’s school that informed them about the study. The parent more involved in the child’s homework was asked to participate. Those who consented to participate completed an online questionnaire.

Data analysis

First, bivariate correlations were conducted among all parental variables. Second, paired-sample *t*-tests were conducted to compare each type of parents’ homework involvement (i.e., autonomy support, control, and interference) in the pre-pandemic period with the same involvement type during the remote education period. Effect sizes were evaluated using Cohen’s *d*. Third, a series of stepwise linear regression analyses were conducted to determine among parents’ motivational beliefs and homework-related emotions, the predictors of parents’ three homework involvement types before and during the school closure due to the COVID-19 confinement.

Results

Correlations and descriptive statistics

Table 1 presents the bivariate correlation coefficients between the study variables before and after the shift to remote education due to the COVID-19 confinement. Means and stand-

ard deviations, skewness and kurtosis of the instruments are also presented in Table 1.

Before the pandemic-related remote education, the results indicated significant positive correlation between parents’ self-efficacy beliefs and both autonomy support and control, whereas a significant negative correlation was found between parents’ beliefs of child’s efficacy and interference. Parents’ positive emotions were positively correlated with autonomy support, parents’ self-efficacy beliefs, and beliefs of their child’s efficacy.

During the school closure and transition to remote education significant positive correlations were found between parents’ self-efficacy and both autonomy support and control, as well as between parents’ beliefs of their child’s efficacy and the same types of involvement. Similar to the period before COVID-19 remote education, parents’ positive emotions were positively correlated with autonomy support, parents’ self-efficacy beliefs and beliefs of their child’s efficacy. Parents’ online self-efficacy was unrelated to involvement types but positively linked to their own and their child’s efficacy beliefs.

Comparing parental homework involvement types before and during remote education

To compare the three types of involvement before and during remote education *t*-tests were conducted. Its results indicated that control and interference increased significantly, $t(126) = 2.465$ $p < .05$, Cohen’s $d = 0.22$ and $t(126) = 2.996$ $p < .001$, Cohen’s $d = 0.27$, respectively. Parents’ control significantly increased during the pandemic-related remote education ($M = 3.52$, $SD = 0.99$) compared to before ($M = 3.4$, $SD = 0.94$). Similarly, an increase was also found for interference during remote education ($M = 1.72$, $SD = 0.57$) compared to before ($M = 1.63$, $SD = 0.51$). Results are presented in Table 2.

Table 1

Bivariate correlations before and during COVID-19-related remote education and descriptive statistics

	1	2	3	4	5	6	7	8
1. Parent autonomy support								
2. Parent control	.44** / .36**							
3. Parent interference	-.05 / 0	.31** / .33**						
4. Parent self-efficacy beliefs	.34** / .33**	.25** / .2*	-.17 / -.1					
5. Parent beliefs of child’s efficacy	.15 / .23**	.12 / .21*	-.23* / -.11	.46** / .46**				
6. Parents’ online self-efficacy	.079	.03	.16	.25**	.3**			
7. Parent positive emotions	.26** / .28**	.17 / .19*	0.05 / .04	.4** / .42**	.28** / .31**	.06		
8. Parent negative emotions	-.19* / -.15	-.1* / -.03	.26** / .23**	-.43** / -.4**	-.36** / -.35**	-.19*	-.45** / -.47**	
<i>M</i>	3.97 / 4.02	3.4 / 3.52	1.63 / 1.72	3.68	3.71	4.64	3.53 / 3.3	1.66 / 1.81
<i>(SD)</i>	0.6 / 0.67	0.94 / 0.99	0.51 / 0.57	0.68	0.83	0.65	0.92 / 1.02	0.83 / 0.98
Skewness	-0.8 / -0.91	-0.26 / -.45	1 / 0.88	-0.43	-0.6	-0.26	-0.74 / -0.51	1.6 / 0.14
Kurtosis	1.06 / 0.94	-0.66 / -.67	0.81 / 0.72	0.13	0.2	8.4	0.17 / -0.5	0.24 / 1.3

Note. Values for before COVID-19 remote education and descriptive statistics are shown on the left on each row. Values for during COVID-19 remote education and descriptive statistics are shown on the right on each row. Parent self-efficacy beliefs, parent beliefs of child’s efficacy and parents’ online self-efficacy were measured only during COVID-19 remote education.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2*Comparing parental involvement types before and during the COVID-19-related remote education*

Parental involvement type		<i>M</i>	<i>SD</i>	<i>t</i> (127)	Cohen's <i>d</i>
Autonomy support	Before	3.97	0.6	-1.524	-0.13
	During	4.02	0.67		
Control	Before	3.4	0.94	2.465*	0.22
	During	3.52	0.99		
Interference	Before	1.63	0.51	2.996***	0.27
	During	1.72	0.57		

* $p < .05$, ** $p < .01$, *** $p < .001$.*Background variables and parental homework involvement before and during remote education*

In addition to parents' self-reported changes in the quality of their involvement (autonomy support, control, and interference), preliminary analyses (independent-samples *t*-tests and ANOVAs) testing potential differences in parental homework involvement types in relation to parental education level and age, as well as children's grade level, did not indicate statistically significant effects in most cases, with few exceptions. On the one hand, regarding parental educational level, differences were only observed for control during the remote education period, $t(120) = 2.16$, $p = .033$, with parents of lower educational level reporting higher levels of controlling involvement compared to parents of higher educational level ($M = 3.84$ vs. $M = 3.42$). And on the other hand, regarding children's grade level, parental involvement type only differed for control $F(3, 123) = 3.5$, $p = .018$, $\omega^2 = 0.06$. Specifically, parents of third graders ($M = 3.84$) reported more controlling involvement than parents of sixth graders ($M = 3.11$).

Predictors of parental homework involvement

Linear regression analyses were applied to determine which motivational and emotional variables among those correlated with the three involvement types, predicted parents' homework involvement. Thus, beyond establishing relationships between variables, the hypothesis that the motivational and emotional variables would predict parents' involvement in children's homework during the COVID-19-related remote education was tested. The stepwise method was employed to sequentially add significant variables to the full model, while also removing the non-significant variables. The final models included only variables with *p*-values below .05, confirming their statistical significance. The analysis revealed that before the remote education parental self-efficacy was the only significant predictor of autonomy support ($R^2 = .12$, $F(1, 125) = 16.79$, $p < .001$, $\beta = .34$, $p < .001$). During school closure ($R^2 = .12$, $F(2, 124) = 8.22$, $p < .001$), parents' self-efficacy remained significant predictor of autonomy support ($\beta = .22$, $p < .05$). Moreover, their positive emotions were marginally significant predictor of autonomy support ($\beta = .19$, $p = .05$).

In relation to control prior to remote education ($R^2 = .06$, $F(1, 125) = 7.998$, $p < .05$), parental self-efficacy was the sole significant predictor ($\beta = .25$, $p < .05$). However, during remote education ($R^2 = .05$, $F(1, 125) = 5.84$, $p < .05$), control was predicted only by parental beliefs of children's efficacy ($\beta = .21$, $p < .05$). Finally, parents' negative emotions positively predicted their interference in children's homework both before ($R^2 = .07$, $F(1, 125) = 8.76$, $p < .05$, $\beta = .26$, $p < .05$) and during remote education ($R^2 = .05$, $F(1, 125) = 7.17$, $p < .05$, $\beta = .233$, $p < .05$). In conclusion, parents' negative emotions regardless of their underlying causes, whether before or during COVID-19 distance learning, contributed to overinvolvement and pressure on children during homework.

Discussion

The COVID-19 pandemic posed serious challenges worldwide for children and their parents such as home-based schooling, parental overinvolvement, especially for children in primary school, and negative homework-related emotional experiences (Suárez et al., 2022; Thorell et al., 2022). The way homework tasks were administered and handed back to teachers radically changed (i.e., use of online tools and digital platforms), and parents were primarily responsible for assisting their children overcome obstacles (i.e., lack of digital skills, etc.) and successfully handle homework (Mocho et al. 2024; Panaoura, 2020). The primary aim of the study was to examine whether parents' involvement in their children's homework was influenced by the transition to remote education. Secondly, it explored various parents' motivational and emotional variables as predictors of their involvement before and during the COVID-19-related remote education. The results pointed out meaningful changes in parents' homework involvement types and their predictors. First, the controlling types of parental involvement (control and interference) increased significantly. Further, an exception to the generally non-significant demographic findings was observed for controlling involvement during the remote education, with higher levels reported by parents with lower education and by parents of younger children. Second, parent autonomy support and control before the pandemic and during the transition to remote education were not predicted by the same factors. Parental self-efficacy to assist their child succeed at school was found as a significant predictor of both autonomy support and control before COVID-

19. However, during the COVID-19-related remote education, besides self-efficacy, positive emotions, albeit marginally, also predicted autonomy support, whereas control was predicted positively only by parental beliefs of children's efficacy. Additionally, parents' negative emotions were the constant predictor of parental interference both before and during the pandemic.

Parents' preference for controlling involvement during the remote education can be explained by the uncertainty linked to the COVID-19 homework settings. The disruption to children's educational routines caused by school closures, coupled with the abrupt shift to remote learning, made parents feel responsible for children's education at home. This was further intensified by insufficient guidance and support from schools and parents' heightened worries about the quality of children's education (Mocho et al. 2024; Thorell et al., 2022). In this light, close supervision and monitoring of children's activity assured homework completion and its online delivery to teachers. As pre-pandemic evidence suggests, mild control may be an effective way of improving children's school performance (Falanga et al., 2023; Viljaranta et al., 2018).

Further, parents with lower education and those of younger children, particularly those in third grade, reported higher levels of controlling involvement than parents with higher education and parents of older children during the pandemic-related remote education. This pattern may reflect that, in a context of heightened parental concerns about children's academic progress (Mocho et al., 2024; Thorell et al., 2022), parents with lower education were more likely to use controlling involvement, consistent with evidence that less educated parents are generally more involved and favor directive teaching strategies compared to more educated parents (Silinskas et al., 2013). Moreover, younger children's greater need for direct assistance with homework—both in general and during the transition to remote learning—may have increased parental control (Panaoura, 2020; Patall et al., 2008; Suárez et al., 2022; Viljaranta et al., 2018). Certainly, in Greece and internationally, the lack of technological skills among less educated parents and younger children became more pronounced during the COVID-19 period due to the increased reliance on online tools and digital platforms as prerequisites for participation in distance learning, which may help explain parents' tendency toward more controlling involvement.

Increased interference in the context of remote education may be explained by parental ignorance of its adverse educational outcomes for children, as well as parents' time constraints linked to balancing telework, household responsibilities and childcare during the COVID-19 period (Thorell et al., 2022; Suárez et al., 2022). Overinvolvement such as, for example, parents giving the right answers to children's homework tasks, is a time-saving practice compared to autonomy support. The high time and energy demand to support children's self-regulated learning (Falanga et al., 2023) can explain why autonomy support was the only type of involvement that did not increase during the remote education. Nevertheless, parents' interference in children's homework, as an extreme form of control that negatively affects children, raises concerns about the quality

of children's learning (Falanga et al., 2023; Gonida & Cortina, 2014, 2014; Tunkkari et al., 2021b). The study's results expand on existing knowledge of parents' role in homeschooling their children during times of crisis, drawing attention to the need to educate parents on how to be more effectively involved rather than simply investing more time (Suárez et al., 2022).

The prominent role of parental self-efficacy was pointed out by the study's results both before and during the pandemic-related remote education. In accordance with previous findings, when parents feel efficacious in assisting their children, they tend to engage more in their homework (Falanga et al., 2023; Green et al., 2007; Hoover-Dempsey et al., 2001). During COVID-19 though, feeling competent in helping children succeed in school was a key determinant of parents' autonomy-supportive involvement. Parents' confidence in being helpful is crucial in order to teach children self-regulation strategies in the face of challenges (i.e., limited teacher support during distance learning) (Thorell et al., 2022) that require increased independence and autonomous learning. In addition, positive emotions seemed to be also important for parents' autonomy-supportive homework involvement during remote education. Parents' positive emotions may buffer or mitigate parent-child conflict and stress that emerge in times of crisis (Jong et al., 2022; Orgilés et al., 2023; Suárez et al., 2022). This finding adds to previous literature on the role of parents' positive emotions for the adoption of autonomy support in children's homework (Tunkkari et al., 2021a).

Although parental self-efficacy was sufficient for monitoring homework before the pandemic, it was parents' beliefs about their children's academic efficacy that predicted parental control during COVID-19 distance learning. This finding may imply that parents prefer mild control over interference when trusting the children's abilities to cope independently with homework (Falanga et al., 2023). Checking homework tasks for mistakes and maintaining a general overview of the homework process may be particularly relevant for parents who emphasize children's performance (Falanga et al., 2023; Gonida & Cortina, 2014), especially in stressful situations such as remote education when parents question teachers' guidance and the quality of children's learning (Thorell et al., 2022).

Finally, unlike the other involvement types, interference was only predicted by parents' negative emotions both before and during the pandemic. As previously addressed by the literature, when parents experience negative affect and feel overwhelmed with assisting children, they tend to adopt strict guidance and intrusiveness in their homework (Silinskas et al., 2015; Tunkkari et al., 2021a). This finding may explain the increase in parents' interference during the pandemic-related remote education, as parental stress and family conflict related to homework intensified during this period (Jong et al., 2022; Orgilés et al., 2023; Suárez et al., 2022). During COVID-19 remote education, parents faced various constraints, such as a lack of adequate study spaces, limited technological resources—particularly in families with more than one school-aged child—and insufficient school support (Thorell et al., 2022), which likely contributed to heightened negative affect and the adoption of interfering practices.

Lastly, the study corroborated earlier findings that parents' confidence in their digital skills strengthens their empowerment to support their children academically (So et al., 2022; Vogel et al., 2023), though this confidence does not necessarily lead to active involvement in homework. Additionally, it was indicated that when parents feel confident in their own ability to use digital means they also tend to believe that their children are capable of succeeding academically.

Limitations and practical implications

Some methodological limitations of the study should be acknowledged. First, due to the practical constraints during the confinement and despite our attempts for a larger sample, the sample was small, with mothers being the great majority, limiting the generalizability of the findings to the broader population. Moreover, the small sample size may have prevented the detection of several statistically significant differences in parental homework involvement types across demographic factors, leading to few meaningful findings regarding parental education, age, or children's grade level. Second, the study was carried out at a single time point and relied on self-reports. Although parents' retrospective and current self-reports reflected their involvement in homework before and during the remote education, as well as their motivational and emotional variables as predictors of their involvement, the data cannot establish causal relationships. Finally, the study did not examine the potential moderating role of contextual factors –such as the sufficiency of technological resources, the availability of adequate study spaces at home, and levels of school support– in shaping parents' emotions and types of homework involvement during the remote education. Future research should consider these factors to better understand parental involvement under conditions of educational disruption, such as the COVID-19 pandemic.

Nevertheless, the study revealed increases in both mild and extreme controlling practices and identified key predictors of parental homework involvement during the COVID-19-related remote education. These findings provide a basis for the development of preventive programs or evidence-based scientific interventions in future crises and underscore the need to educate parents on types of homework involvement that promote adaptive educational outcomes for children. They also highlight the importance of providing emotional support and strengthening parents' sense of efficacy to support their child succeed at school as essential conditions for effectively supporting children's academic success in periods of uncertainty, such as during COVID-19.

Conclusions

The study allowed for a timely investigation of parental homework involvement and enabled meaningful comparisons before and during the educational disruption caused by the pandemic, which was characterized by school closures and an intensified parental role in supporting children's academic learning at home. Specifically, our findings indicated that (i)

parents increased both mild and extreme controlling practices (i.e., control and interference) and (ii) parental self-efficacy, parents' beliefs of child's efficacy, and their emotions played a significant role in the quality of their involvement during the school closure. Concluding, the study emphasized parents' need for support in challenging circumstances, such as remote education, and highlighted the importance of ensuring constructive parental involvement in children's homework during crises like the COVID-19 pandemic.

Author contributions

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 Writing – review & editing: K.F., E.G., T.V.

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Declaration of interests

The authors declare that there is no conflict of interests.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author.

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