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Home schooling during the COVID-19 pandemic in the United Kingdom: The experience of families of children with neurodevelopmental conditions

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The COVID-19 outbreak, and associated school restrictions affected the learning experience of students worldwide. The current study focused on the learning experiences of United Kingdom children with neurodevelopmental conditions, including autism and/or intellectual disability. Specifically, the aim was to examine families' experience with school support for home schooling, families' resources, and level of satisfaction with schools among families whose children engaged with home schooling, hybrid learning, and school-based learning during the pandemic. An online survey took place in 2021, approximately 1 year since the start of the COVID-19 pandemic in the United Kingdom. Participants were recruited mostly through social media with support via several charities across the United Kingdom. Participants were 809 parents/carers of children with autism and/or intellectual disability aged 5 – 15 years. Of these, 59% were learning from home daily during home schooling, 19% spent some days in school (hybrid learning), and 22% were going to school daily during school restrictions. Parents/carers reported on the support received from schools, the resources accessed, and the resources needed but not accessed to facilitate learning. They also reported on their level of satisfaction with school support and school management of COVID-19 risks. Results indicated that learning during the COVID-19 pandemic was mostly via school-provided worksheets, in the home and hybrid learning group. Families had access to the internet/data and a laptop, computer, or tablet to facilitate learning. However, in both learning groups (i.e., home and hybrid learning) they needed but did not have access to special equipment, special software, and a printer. Importantly, 11% of families in home and hybrid learning groups

reported not having access to a desk/table. Satisfaction with school support was low in the home and hybrid learning groups. Satisfaction with COVID-19 management was higher for families of children attending school daily (i.e., the school-based learning group). Future education policy decisions during public health crises should take into consideration the needs of children with neurodevelopmental conditions including autism and/or intellectual disability.

KEYWORDS

autism (ASD), learning disabilities (intellectual disability), equipment, teachers, pandemic (COVID-19)

Introduction

In June 2021, the World Health Organisation ([World Health Organisation \[WHO\], 2021](#)) recommended that countries should maintain teaching support and school services (e.g., special education, school meals, health services) during COVID-19 school restrictions, either uninterrupted or adapted accordingly. In addition, [World Health Organisation \[WHO\] \(2021\)](#) highlighted that children should have access to devices and facilities (e.g., broadband) to enable learning during the pandemic. Schools in the United Kingdom were closed between January 4 and March 15, 2021. That was the second round of school restrictions during the pandemic following the restrictions in March to May 2020 as a result of the COVID-19 outbreak in the United Kingdom. Children were allowed to continue attending school in person if their parents/carers were critical workers (e.g., health and social care, transport, food companies) or if they were vulnerable children (e.g., children with an education, health and care plan [EHCP], children in special schools, children referred to social care services) ([Department for Education, 2021a](#)). Otherwise, children attended school from home (sometimes referred to as home schooling or home learning) during this period.

Autism spectrum disorder and intellectual disability are neurodevelopmental disorders ([American Psychiatric Association, 2013](#)). Autistic children present with social and communication difficulties and restricted and repetitive patterns of behaviours and interests that affect their overall level of functioning ([American Psychiatric Association, 2013](#)). Intellectual disability includes significant limitations in intellectual functioning (e.g., problem solving, learning) and in adaptive behaviour skills (e.g., communication, social and daily living skills) (American Association of Intellectual and Developmental Disabilities [AAIDD]; [Schalock et al., 2021](#)). Therefore, many autistic children and children with an intellectual disability present with communication difficulties, memory, attention, motor, and behaviour problems which require adjustments and support within educational settings ([Cibralic et al., 2019](#); [Cresswell et al., 2019](#); [Benallie et al., 2021](#)).

The United Kingdom educational system identifies, foremost, children's special learning needs (regardless of the presence of a clinical diagnosis) and indicates (in each child's EHCP) what adjustments or additional resources the child requires for their education. Adjustments or additional resources typically focus on the child's education at school. Autistic children or children with an intellectual disability are among the groups of children with special educational needs who struggle to achieve expected educational standards ([Goodall, 2020](#); [Department for Education, 2022c](#)).

Policy documents indicated that when the COVID-19 pandemic started in the United Kingdom, 2% of United Kingdom households with children had no internet access at home, 4% used mobile data at home, and 9% had no access to a laptop, computer, or a tablet at home, for the period January to March 2020 ([Roberts and Danechi, 2022](#)). These figures suggest that some households, possibly including households with children with neurodevelopmental conditions, might have experienced additional challenges to facilitate home schooling during school closures in 2021.

There is mounting evidence that families of children with neurodevelopmental conditions were worried about their child's academic performance and progress during the first COVID-19 school restrictions in 2020 ([Hill et al., 2021](#); [Mumbardó-Adam et al., 2021](#); [Tokatly-Latzer et al., 2021](#); [Fridell et al., 2022](#); [Thorell et al., 2022](#)). Indeed, it was estimated that primary school-aged children in England showed 2 months delay in reading and mathematics due to the COVID-19 school restrictions in 2020 when assessed in autumn 2020 ([Leahy et al., 2021](#); [Rose et al., 2021](#)). Academic losses in students aged 5 – 10 years were exacerbated as a result of the COVID-19 school restrictions in January to March 2021 when assessed in Spring 2021 ([Twist et al., 2022](#)). In addition, families expressed their concerns about their own competence and resources to facilitate home schooling with limited or no support from schools and insufficient communication with school staff during school restrictions associated with the first lockdown ([Hill et al., 2021](#); [Mumbardó-Adam et al., 2021](#); [Tokatly-Latzer et al., 2021](#); [Fridell et al., 2022](#); [Thorell et al., 2022](#)).

The existing literature is based on school closures during April to August 2020, and available studies are predominantly qualitative (Hill et al., 2021; Mumbardó-Adam et al., 2021; Tokatly-Latzer et al., 2021; Fridell et al., 2022) with small sample sizes. COVID-19 school restrictions unearthed the ongoing educational challenges of this population of children and their families which are often neglected (Thorell et al., 2022). In addition, learning amid the COVID-19 pandemic moved from school to home or hybrid learning, creating a new landscape of education which has not been evaluated yet. No studies have examined the level of satisfaction with home schooling, hybrid learning and school-based learning during the COVID-19 school restrictions in 2021 among families of children with neurodevelopmental conditions including autism and/or intellectual disability. Home schooling refers to the provision of education at home for school-registered children while schools were closed during the COVID-19 school restrictions (Greenway and Eaton-Thomas, 2020). Hybrid learning is a blended learning modality of in-person school attendance and remote learning for school-registered children (Raes et al., 2020; Hurwitz et al., 2022).

The overall aim of the present study was to describe family experiences with school support and their resources for home schooling. In addition, the study investigated parents'/carers' satisfaction with school support for home schooling and school management of COVID-19 risks depending on whether their child was home schooled entirely or went to school some days (hybrid learning) or attended every day (school-based learning) during school restrictions in January to March 2021.

Materials and methods

Study participants

Study inclusion criteria included being the parent/carer of an autistic child and/or a child with an intellectual disability, aged 5 – 15 years old, and living in the United Kingdom. The survey included 809 parents/carers who reported on their child's learning location during January to March 2021. Of those, 480 (59%) reported that their child was learning from home every day (the "home learning" group), 154 (19%) reported that their child was learning from home some days but also went to school for some days or weeks (the "hybrid learning" group), and 175 (22%) reported that their child was able to attend school every day (the "school-based learning" group).

The majority of respondents in the survey were parents (i.e., biological, foster, adoptive, step; $n = 752$, 93%) aged on average 43.6 years old ($SD = 7.24$, range 24 – 73 years). The majority of children were boys ($n = 551$, 69%). Most children were autistic ($n = 660$, 82%), of White British ethnicity ($n = 725$, 90%), and lived in England ($n = 683$, 84%). Almost six hundred children (74%) had a Special Education Needs and Disabilities (SEND)

plan and 497 children (62%) attended mainstream school. The characteristics of study participants are presented in [Table 1](#).

Questionnaire

Participants responded to a range of demographic questions about themselves (e.g., age, role, gender, educational category, employment status) and their child (e.g., age, gender, neurodevelopmental condition, ethnicity, country of living, educational support, school type). Parents/carers were asked to choose from three options to describe where their child was learning during January to March of 2021: (1) at home; (2) at home and in school sometimes; or (3) in school. In addition, they selected (via a multiple-choice response) the type of support received from their child's school. We also collected data on family resources for learning during this period. For each equipment type (computer, printer, etc.), respondents could indicate: (1) whether it was needed, and the family had access to it; (2) whether it was needed but they did not have access; or (3) whether it was provided by school. Finally, parents/carers rated on a scale from 1 to 10 the level of satisfaction with the support received to facilitate home schooling during January to March 2021, as well as their satisfaction with the way the school managed the challenges of COVID-19 during the academic year of 2020 to 2021.

Study procedure

Flyers with information about the study and a link to the study were disseminated online via social media and mailing lists from several charities for children with neurodevelopmental conditions (e.g., autism and/or intellectual disability). Participants followed the online link to the study where they read and downloaded a copy of the information sheet. Parents/carers completed an electronic informed consent form before proceeding with the questionnaire. The survey was hosted by Qualtrics (June to August 2021). Ethical approval for this study was obtained from University College London Research Ethics Committee (Ref number: 20633/001). Participation was voluntary and anonymous following the General Data Protection Regulation (GDPR) guidance for research and the United Kingdom Data Protection Act 2018 related to the processing of personal data in the United Kingdom.

Data analysis

Descriptive statistics were used to describe participants' demographic characteristics, school support, family resources

TABLE 1 Sociodemographic characteristics of children with neurodevelopmental conditions and their families.

Characteristic	Home learning n (%)	Hybrid learning n (%)	School-based learning n (%)	Total n (%)
Total	480 (100)	154 (100)	175 (100)	809 (100)
Child				
Age in years (Mean, SD)	10.94 (2.79)	10.03 (3.09)	9.77 (3.09)	10.52 (2.96)
Range in years	5 – 15	5 – 15	5 – 15	5 – 15
Gender				
Male	323 (68)	106 (69)	122 (69)	551 (69)
Female	149 (31)	46 (30)	52 (30)	247 (31)
Another gender	5 (1)	2 (1)	1 (< 1)	8 (1)
Condition				
Autism	396 (82)	117 (76)	147 (84)	660 (82)
Intellectual disability	164 (34)	68 (45)	81 (47)	313 (39)
Sensory impairment	33 (7)	13 (8)	9 (5)	55 (7)
Mobility problems	57 (12)	22 (15)	18 (11)	97 (12)
Additional physical problems*	136 (29)	37 (24)	49 (28)	222 (27)
Ethnicity				
White British	424 (89)	141 (92)	160 (92)	725 (90)
Mixed/Multiple ethnic	34 (7)	9 (6)	9 (5)	52 (6)
Asian/Asian British	17 (3)	1 (< 1)	3 (2)	21 (3)
Black/African/Caribbean/Black British	2 (< 1)	3 (2)	2 (1)	7 (< 1)
Other ethnic group	1 (< 1)	–	–	1 (< 1)
Country of living				
England	396 (82)	126 (82)	161 (92)	683 (84)
Scotland	47 (10)	12 (8)	8 (5)	67 (9)
Wales	22 (5)	8 (5)	1 (< 1)	31 (4)
Northern Ireland	15 (3)	8 (5)	5 (3)	28 (3)
Child has SEND plan	330 (69)	118 (77)	148 (85)	596 (74)
Mainstream school	306 (64)	90 (59)	101 (58)	497 (62)
Special school	157 (33)	63 (41)	69 (40)	289 (36)
Alternative provision	11 (3)	–	3 (2)	14 (2)
Respondent				
Parent	470 (98)	147 (95)	166 (95)	783 (97)
Carer	10 (2)	7 (5)	8 (5)	25 (3)
Parent age in years (Mean, SD)	43.94 (6.62)	42.41 (7.82)	43.54 (8.23)	43.57 (7.24)
Age range	25 – 67	24 – 73	26 – 73	24 – 73
Educated below degree level	231 (48)	76 (50)	104 (60)	411 (51)
Degree level or above	229 (48)	69 (45)	66 (38)	364 (45)
Employed	244 (51)	93 (60)	104 (59)	441 (55)

*Epilepsy, asthma, eating disorders, obesity, cancer, Crohn's disease, cystic fibrosis, health condition; SEND, special educational needs and disabilities.

to facilitate learning and satisfaction with school support and school's management of COVID-19 risks. We compared parent satisfaction with school support and satisfaction with school management of COVID-19 risks among the three learning groups, United Kingdom countries [using Analysis of Variance (ANOVA)], SEND plan presence and type of school (independent groups *t*-test). Special school and alternative provision were combined in one group due to small sample size of children in alternative provision. Analyses were performed in SPSS version 27.

Results

School support for home schooling

Table 2 summarises the support offered by schools to families with children in home or hybrid learning during the period January to March 2021 when schools were closed in the United Kingdom. Parents/carers of autistic children and/or children with intellectual disability most frequently reported that school staff shared educational material electronically to

TABLE 2 School support for home schooling in January – March 2021.

	Home learning n (%)	Hybrid learning n (%)
The school offered lessons online – full day or almost full day	164 (34)	34 (22)
The school offered some lessons online – every week	123 (26)	41 (27)
The school sent material and homework through email or online platform	263 (55)	108 (70)
The school offered us print outs of material and homework	118 (25)	41 (27)
The school did not offer any material or homework or online lessons	18 (4)	5 (3)
The teacher called us on the phone at least once while my child was learning from home	184 (39)	57 (37)
The teacher met with my child online at least once while my child was learning from home	106 (22)	29 (19)
The school made no contact with my child (or me)	24 (5)	4 (3)
The school created opportunities where my child could interact with their peers online	114 (24)	37 (24)

facilitate learning ($n = 263$, 55% in home learning; $n = 108$, 70% in hybrid learning). The second most common form of support was teaching staff liaising with parents/carers or their child at least once over the phone ($n = 184$, 39% in home learning; $n = 57$, 37% in hybrid learning). In addition, 24% of parents/carers in both learning groups ($n = 114$ in home learning; $n = 37$ in hybrid learning) reported their children had social opportunities with their peers during the period of COVID-19 school restrictions. Only 5% ($n = 24$) and 3% ($n = 4$) of families in the home and hybrid learning groups, respectively, reported the school made no contact with their child or themselves during that period.

In the home learning group, 34% ($n = 168$) of parents/carers of autistic children and/or children with intellectual disability reported that their child's school offered online lessons for a full day, or almost a full day, followed by 26% ($n = 123$) of parents/carers who reported schools offered some lessons online weekly. In addition, 25% ($n = 118$) of parents/carers reported that the schools offered print out worksheets. In the hybrid learning group, 27% ($n = 41$) of parents/carers of children with neurodevelopmental conditions including autism and/or intellectual disability reported that the school offered online lessons on a weekly basis and print out worksheets. About a quarter of parents/carers of autistic children and/or children with intellectual disability ($n = 34$, 22%) reported the school offered lessons online for a full day or almost a full day.

Family resources for home schooling

Table 3 presents the equipment accessed and equipment needed but not accessed by parents/carers of children with

neurodevelopmental conditions including autism and/or intellectual disability for the home and hybrid learning groups. Parents/carers most frequently reported that they had access to the internet/data ($n = 441$, 92% in home learning; $n = 134$, 87% in hybrid learning) followed by a laptop, computer or tablet ($n = 367$, 76% in home learning; $n = 116$, 76% in hybrid learning).

In the home learning group, parents/carers ($n = 94$, 20%) most frequently reported that they needed but did not have access to other special equipment (e.g., books, special chair, special music equipment) to facilitate learning, followed by a printer ($n = 82$, 17%) and special software ($n = 79$, 17%). In the hybrid learning group, 18% of parents/carers ($n = 28$) reported they needed but did not have access to special software facilitate learning. The second most common form of equipment needed but not accessed in the hybrid learning group was a printer ($n = 26$, 17%) and access to special equipment (e.g., books, special chair) to facilitate learning ($n = 25$, 16%). Interestingly, 11% of parents/carers in both learning groups reported not having access to a desk/table. Finally, parents/carers most frequently reported that the school offered a laptop, computer, or tablet ($n = 59$, 13% in home learning; $n = 13$, 9% in hybrid learning) followed by access to special software ($n = 38$, 8% in home learning; $n = 10$, 6% in hybrid learning).

Satisfaction with support from schools and with COVID-19 management

Parents/carers whose children were in home learning reported being moderately satisfied ($M = 5.63$; $SD = 2.75$; range 1 – 10) with the school support their child received. Similar levels of satisfaction were reported by parents/carers of children in the hybrid learning group ($M = 5.90$; $SD = 2.55$; range 1 – 10). There was no statistically significant difference between these two learning groups ($p = 0.302$) (**Table 4**).

In addition, all parents/carers reported their level of satisfaction with the COVID-19 procedures at schools in 2020 to 2021. Parents/carers with children in home and hybrid learning groups moderately satisfied with the way their child's school managed the challenges of COVID-19 (home learning: $M = 6.29$; $SD = 2.76$; range 1 – 10; hybrid learning: $M = 6.45$; $SD = 2.54$; range 1 – 10). In contrast, parents/carers of children in the school-based learning group during the COVID-19 lockdown period (January to March 2021) reported higher levels of satisfaction ($M = 7.79$; $SD = 2.29$; range 1 – 10) compared to the other two learning groups ($p < 0.001$) (**Table 4**).

Lower levels of satisfaction with school support and COVID-19 management at schools in 2020–2021 were noted for parents/carers of children with a SEND plan as well as those in mainstream school compared to special school/alternative provision. Looking at the four United Kingdom countries overall levels of parent satisfaction with school support for home learning were lowest in Scotland. Similarly, overall

TABLE 3 Family resources to facilitate home learning for children with neurodevelopmental conditions in January – March 2021.

	Home learning			Hybrid learning		
	Needed/ Had access <i>n</i> (%)	Needed/ Not access <i>n</i> (%)	School provided <i>n</i> (%)	Needed/ Had access <i>n</i> (%)	Needed/ Not access <i>n</i> (%)	School provided <i>n</i> (%)
Laptop, computer or tablet ¹	367 (76)	35 (8)	59 (13)	116 (76)	14 (9)	13 (9)
Smartphone ¹	323 (68)	16 (4)	1 (< 1)	81 (53)	5 (3)	–
Printer ¹	318 (67)	82 (17)	6 (2)	91 (60)	26 (17)	3 (2)
Internet/Data ¹	441 (92)	4 (< 1)	5 (1)	134 (87)	5 (3)	–
Headphones ¹	301 (63)	46 (10)	3 (< 1)	76 (50)	15 (10)	1 (< 1)
Special software ¹	167 (35)	79 (17)	38 (8)	38 (25)	28 (18)	10 (6)
Webcam ¹	270 (57)	60 (13)	19 (4)	74 (49)	18 (12)	2 (2)
Desk/Table ¹	363 (76)	55 (11)	–	111 (72)	16 (11)	–
Other special equipment ¹ (e.g., special chair, books, special music equipment)	171 (36)	94 (20)	25 (5)	41 (27)	25 (16)	12 (8)

¹Numbers do not add up to 480 for home learning or 154 for hybrid learning because some parents/caregivers left items incomplete.

levels of satisfaction with the way school managed the COVID-19 challenges during the 2020–2021 school year were lowest in Scotland compared to the other United Kingdom countries (Table 4).

Discussion

This study explored the educational experiences, resources, and level of satisfaction of families of children with neurodevelopmental conditions including autism and/or intellectual disability. In short, the COVID-19 school restrictions in 2021 disrupted educational routines among families of children with neurodevelopmental conditions. During the period January to March 2021, the majority of children in the current study were supported through online material and print out worksheets followed by online lessons. This finding indicates that following a 7-month period of COVID-19 school restrictions in the United Kingdom (1st school restriction: March – June 2020; 2nd school restriction: January – March 2021), in January to March 2021 schools provided more resources, offering online lessons and print out worksheets, relative to the March to April 2020 period when students were supported mainly via worksheets (Del Bono et al., 2021). Further, our study indicated that some teachers were in contact, at least once, with parents/carers and/or the child in both learning groups (e.g., home and hybrid) during the January to March 2021 period when school restrictions were in place. A qualitative study with 47 Spanish families of autistic children indicated that 62% of parents/carers reported that school support during the COVID-19 lockdown in April 2020 mainly involved online lessons and homework, while 27% reported receiving generic guidelines or no support, and 13% had phone/electronic communication with school staff (Mumbardó-Adam et al., 2021).

Family resources for home schooling during school restrictions in 2021 were of particular interest in this study due to limited attention to this in the literature. In our study, 8 and 9% of parents/carers of autistic children and/or children with intellectual disability in home and hybrid learning, respectively, reported not having access to a laptop/computer or tablet regardless of the government's initiative to tackle social inequalities. The Department of Education launched the “Get Help With Technology” programme which had been initiated to improve families' access to resources needed for home and/or

TABLE 4 Parents'/carers' satisfaction with school support and school's management of COVID-19 risks.

	Satisfaction with the support parents and children received from school between January and March 2021 while learning from home	Satisfaction with the way the child's school managed the challenges of COVID-19 in 2020–2021
	Mean (SD)	Mean (SD)
Home learning	5.63 (2.75)	6.29 (2.76)
Hybrid learning	5.90 (2.55)	6.45 (2.54)
School-based learning	n/a	7.79 (2.29)*
Child has a SEND plan	5.74 (2.72)	6.73 (2.70)
Mainstream school	5.58 (2.63)	6.54 (2.65)
Special school/Alternative provision	5.87 (2.84)	6.87 (2.76)
England	5.69 (2.71)	6.72 (2.67)
Scotland	5.11 (2.86)	6.15 (2.86)
Wales	6.27 (2.62)	6.37 (2.68)
Northern Ireland	6.10 (2.14)	6.68 (2.80)

**p*-value < 0.05.

hybrid learning (Department for Education, 2022b). The “Get Help With Technology” programme in England involved the distribution of 1.3 million laptops and tablets by July 2021, and charities and schools had also initiated their own programmes (Cattan et al., 2021). Interestingly, the government’s initiative with the “Get Help With Technology” programme did not take into consideration the need for households to have access to special software to facilitate learning during the second round of school restrictions in 2021. Of note is that 11% of autistic children and/or children with intellectual disability did not have access to a table/desk in home and hybrid learning. Among children living in England, lack of space for studying had been reported since the first national lockdown (Andrew et al., 2020). Nonetheless, it appears that these students’ lack of access to a dedicated space received less attention from education policy makers compared to their access to other resources (e.g., laptop/computer or tablet). There is, however, growing evidence, predominantly from the first national lockdown (March to May 2020), that the level of school support was dependent on each school’s willingness to accommodate individual needs (Hill et al., 2021; Mumbardó-Adam et al., 2021; Thorell et al., 2022).

In this study, a significant number of families lacked access to special equipment and software to enable remote learning. Schools were guided to use a “single interactive platform” including Microsoft Teams or Google Classroom to facilitate home learning (Department for Education, 2021b). Regardless of policy recommendations to adjust home and/or hybrid learning and provide households with the necessary equipment (i.e., World Health Organisation [WHO], 2021; Department for Education, 2022a,b), it is evident that some households in the United Kingdom experienced inequalities and children with SEND might have been disadvantaged by COVID-19 school restrictions and home learning. These findings emphasise that families were predominantly dependent on the availability of existing resources within their household to facilitate home schooling rather than receiving school support. Previous research has emphasised that a combination of household resources and school support might have improved children’s learning experiences during the COVID-19 school restrictions (Andrew et al., 2020).

Levels of satisfaction with school among families of children with neurodevelopmental conditions including autism and/or intellectual disability were generally low, whether it was support for home schooling or the school’s management of COVID-19 risks. This pattern of low satisfaction was consistent across different learning groups (e.g., home and hybrid), across the four United Kingdom nations, between children with a SEND formal recognition status and those without, and between children in mainstream schools versus those in special or alternative provision. These findings align with the recent literature (Gillespie-Smith et al., 2021; Heyworth et al., 2021). The only exception was satisfaction with COVID-19 management; this was higher for families of children in school-based learning

during school restrictions in January to March of 2021. The closure of schools and the requirement for home schooling was an additional stressor for families of autistic children and/or children with an intellectual disability. Findings here suggest that family adaptation to stressors may vary depending on the extent of the stressor – some children went to school some days, and some went to school every day – and formal and informal support from school for home schooling (McCubbin and Patterson, 1983; Friesen et al., 2022).

Strengths and limitations

This is the only study, to our knowledge, that contributes to the COVID-19 education literature presenting the type of school support and resources provided to families of children with neurodevelopmental conditions including autism and/or intellectual disability. Similarly, families’ satisfaction with school support and school’s management of COVID-19 risks per learning group (e.g., home learning, hybrid learning, school-based learning) during United Kingdom school restrictions in January to March 2021 has not been reported in the literature. Several limitations to the current study warrant consideration. Parents/carers in the study needed to have access to technology devices to take part in the study which was advertised predominantly online. Therefore, it is likely that there was an element of selection bias in our recruitment of participants. The survey respondents were predominantly of a white ethnic group and may not fully represent the voices of parents/carers from other minority ethnic groups who were also disproportionately affected by COVID-19. Participant numbers from the three United Kingdom countries that are not England were low, precluding country-level comparisons. In addition, this is a cross-sectional survey, and no causal relationships should be inferred.

Conclusion

Home schooling during the COVID-19 pandemic was a challenge in families of autistic children and/or children with intellectual disability. Overall, families were not very satisfied with the support they received from school or how their school handled the COVID-19 pandemic. This was especially pertinent to families whose children were learning from home every day or some days during school closures. The impact of home learning for children with neurodevelopmental conditions requires further examination to identify efficient long-term models of educational support. The needs of families of children with neurodevelopmental conditions in response to a future public (health) emergency event need to be considered in education policy. Responding efficiently

to the needs of families of children with neurodevelopmental conditions ensures educational provisions will be in place to meet individual needs effectively.

Data availability statement

The data can be accessed from here: <https://reshare.ukdataservice.ac.uk/855596/>.

Ethics statement

The studies involving human participants were reviewed and approved by the University College London Research Ethics Committee (Ref number: 20633/001). Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

Author contributions

VT, RH, KG, BT, GM, DH, and AA conceived and designed the study. AK and VT managed the study. AK collected the data and performed the data analysis supervised by VT and wrote the manuscript. All authors provided critical feedback, contributed to the final manuscript, and agreed to the publication of the article.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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