Observational Study of the Impact of COVID-19 on Sleep in Children With and Without Special Educational Needs

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Objectives: Children and young people (CYP) with special educational needs (SEN) are more likely to experience disturbed sleep and poor mental wellbeing. This study explored the differential impact of the coronavirus disease 2019 (COVID-19) pandemic on the sleep and mental wellbeing of CYP with and without SEN.

Methods: The National Institute of Health Research Children and Young People MedTech Co-operative, Sheffield Children's National Health Service (NHS) Foundation Trust, and The Sleep Charity carried out an online survey between June 23, 2020, and August 17, 2020. The 77-item survey was shared on social media platforms.

Results: A total of 559 participants were included in the analyses, and 15.74% of them reported having CYP with SEN. While sleep changes due to the pandemic were largely similar for both groups, CYP with SEN were more likely to get up or wake up during the night than those without SEN (40.91% vs. 27.18%). CYP with SEN were significantly more likely than those without SEN to be demotivated (61.44% vs. 31.57%), sad and tearful (36.15% vs. 19.35%), or anxious and stressed (41.67% vs. 18.54%) during the pandemic, and the increased anxiety was more likely to contribute to poorer sleep (43.48% vs. 14.82%).

Conclusions: While the majority of CYP in both groups reported sleep changes due to the pandemic, CYP with SEN experienced more sleep disturbance. The findings provide initial evidence to suggest that the pandemic may have had a greater impact on the sleep and mental wellbeing of CYP with SEN than those without SEN.

Keywords: Children; COVID-19; Mental health; Sleep; Education, special; Adolescent.

INTRODUCTION

Sleep is a restorative process fundamental to physical and psychological health.1 However, 20%–30% of children and young people (CYP) in the United Kingdom (UK) experience behavioral insomnia, a sleep disorder characterized by difficulty falling and/or staying asleep.2 The prevalence of sleep problems rises to 40%–80% in CYP with special educational needs (SEN).3 With 12.2% of CYP in the UK having SEN,4 it is essential to understand and mitigate the potential impact of disrupted sleep in this population.

Disrupted sleep in CYP is associated with many deleterious short- and long-term outcomes including childhood obesity,5 behavioral problems,6 and poor school performance.7-9 There is growing evidence to support a strong relationship between sleep and mental health in CYP.10-12 For example, poor sleep in CYP has been associated with an increased risk of self-harm and suicidal ideation13-15 and is predictive of anxiety disorders and depression in adulthood.16,17

CYP with SEN are significantly more likely to be diagnosed with a mental health condition than those without SEN.18 While the relationship between mental health and SEN is complex, disturbed sleep may be a factor contributing to the higher prevalence of mental health conditions in this population. A better understanding of the relationship between mental wellbeing and sleep in CYP with and without SEN will enable health services to deliver more effective support and intervention.

In March 2020, the World Health Organization declared coronavirus disease 2019 (COVID-19) a global pandemic. To reduce the spread of the virus, lockdown restrictions were introduced in the UK, whereby all residents were legally required to stay at home unless they were key workers (i.e., public or private sector employees considered to provide essential services).
Early work anticipated that the pandemic would have a significant impact on the mental health and wellbeing of CYP and that there was a clear potential for sleep problems to emerge or worsen. In support of this, there is increasing evidence that the lockdown restrictions adversely affected sleep and mental wellbeing. Although CYP with SEN are at a greater risk of sleep problems and mental health conditions, to our knowledge, no study has yet assessed the differential impact of the pandemic on sleep and mental wellbeing in CYP with and without SEN.

The National Institute of Health Research Children and Young People MedTech Co-operative, Sheffield Children’s NHS Foundation Trust, and The Sleep Charity, therefore, carried out a survey that aimed to assess the impact of the COVID-19 pandemic on sleep and mental wellbeing of CYP with and without SEN. The research team plans to use the results from this survey to inform priorities for future research, including the development and evaluation of sleep-specific interventions for CYP with and without SEN.

METHODS

Design
This cross-sectional study was conducted using an online survey consisting of 77 questions (Supplementary Materials in the online-only Data Supplement). Parents/caregivers anonymously completed the survey using SmartSurvey (https://www.smartsurvey.co.uk/) between June 23, 2020, and August 17, 2020.

Survey
The questions for the survey were drafted based on the experiences of sleep professionals with CYP and families in their care since the beginning of the pandemic. The survey was piloted with 10 staff members with children, and the wording and order of the questions were amended following feedback. The final version of the survey was distributed to parents/caregivers via social media. The survey was posted on the Twitter accounts of two UK national organizations: @TheSleepCharity, which has 4,667 followers, and @NIHRCypMedTech, which has 1,276 followers. The followers were also asked to share the survey on their own Twitter accounts.

Analysis
To compare whether the pandemic differentially affected the sleep and wellbeing of CYP with and without SEN, survey respondents were split into two groups (CYP with SEN; CYP without SEN) based on the parent/caregiver response to Q17. Descriptive statistics were calculated for all the survey responses (Supplementary Table 1 in the online-only Data Supplement). Chi-square tests were used to statistically compare the groups. Fischer’s exact test was used when the cell count was below 5. To reduce the number of statistical tests, the analyses only focused on questions relating to sleep and mental wellbeing in CYP. Responses to questions 23a, 23b, and 26 were collapsed from seven categories to three to further reduce the number of comparisons. The responses marked “not applicable” were excluded from the analyses. The significance threshold was set at \( p < 0.05 \). Cramer’s V (Φc) was calculated to assess effect size. All statistical analyses were performed using Stata/SE 15.1 (StataCorp., College Station, TX, USA; https://www.stata.com). Free-text answers were coded.

RESULTS

Participants
A total of 585 parents/caregivers completed the survey from 77 postcodes across the UK. Parents/caregivers who completed the survey on behalf of multiple children and one young person aged 25 years were excluded from the analyses, leaving a final sample of 559 respondents (age range 1–17 years). In total, 133 SEN diagnoses were reported across 88 children (median=1, range=1–7), with the most common being autism spectrum disorder (32.33%); attention deficit/hyperactivity disorder (15.04%); dyslexia, dyspraxia, or dyscalculia (18.80%); and learning difficulties (5.26%). The respondents’ demographics are presented in Table 1.

Impact of the pandemic on sleep patterns in CYP
A significant association was found between SEN and CYP getting up or waking up frequently during the night during the pandemic \( \chi^2[1, 559]=6.75, p=0.009 \); 40.91% of CYP with SEN got up or woke up more frequently during the pandemic compared with 27.18% of CYP without SEN (Table 2).

A significant association was also found between SEN and changes in going-to-bed time in CYP during the pandemic \( \chi^2[2, 558]=11.83, p=0.006 \); 71.59% of CYP with SEN went to bed later, 4.55% went to bed earlier, and 23.86% reported no change, whereas 82.13% of CYP without SEN went to bed later, 0.64% went to bed earlier, and 17.23% reported no change.

No other significant differences between CYP with and with-
Table 1. Demographic details of the survey respondents and their families

| Question* | Total (n=559) | CYP without SEN (n=471) | CYP with SEN (n=88) |
|-----------|---------------|------------------------|---------------------|
| 1. Parent/carer employment status | | | |
| Key worker | 187 (33.45) | 167/471 (35.46) | 20/88 (22.73) |
| Working on business premises | 9 (1.61) | 7/471 (1.49) | 2/88 (2.27) |
| Working from home | 195 (34.88) | 169/471 (35.88) | 26/88 (29.55) |
| Not working (including being made redundant or furloughed) | 111 (19.86) | 91/471 (19.32) | 20/88 (22.73) |
| Other | 57 (10.20) | 37/471 (7.86) | 20/88 (22.73) |
| 4. Number of children in household, median (range) | 2 (1–6) | 2 (1–6) | 2 (1–5) |
| 5. Parent/carer, close friend, or family member hospitalised with COVID-19 | | | |
| Yes | 33/557 (5.92) | 28/469 (5.97) | 5/88 (5.68) |
| No | 524/557 (94.08) | 441/469 (94.03) | 83/88 (94.32) |
| 11. Child age (yr), median (range) | 10 (1–17) | 10 (1–17) | 12 (2–16) |
| 12. Child gender | | | |
| Male | 247 (44.19) | 193/471 (40.98) | 54/88 (61.36) |
| Female | 312 (55.81) | 278/471 (59.02) | 34/88 (38.64) |
| 13. Child type of school | | | |
| Private day nursery | 14 (2.51) | 12/470 (2.55) | 2/88 (2.27) |
| Childminder | 2 (0.36) | 2/470 (0.43) | 0/88 (0.00) |
| Pre-school | 26 (4.66) | 24/470 (5.11) | 2/88 (2.27) |
| State school | 466 (83.51) | 402/470 (85.53) | 64/88 (72.73) |
| Independent school | 26 (4.66) | 21/470 (4.47) | 5/88 (5.68) |
| Special school | 9 (1.61) | 0/470 (0.00) | 9/88 (10.23) |
| Home | 4 (0.72) | 3/470 (0.64) | 1/88 (1.14) |
| Other | 11 (1.97) | 6/470 (1.28) | 5/88 (5.68) |
| 15. Child attended school in person during lockdown (Mar–May 2020) | | | |
| Yes | 58/559 (10.38) | 45/471 (9.55) | 13/88 (14.77) |
| No | 501/559 (89.62) | 426/471 (90.45) | 75/88 (85.23) |
| 17. Child SEN diagnoses | | | |
| Autism spectrum disorder | 43/133 (32.33) | - | 43/133 (32.33) |
| Attention deficit/hyperactivity disorder | 20/133 (15.04) | - | 20/133 (15.04) |
| Learning difficulties | 7/133 (5.26) | - | 7/133 (5.26) |
| Dyslexia/dyspraxia/dyscalculia | 25/133 (18.80) | - | 25/133 (18.80) |
| Other | 38/133 (25.57) | - | 38/133 (25.57) |
| 19. Child MHC | | | |
| Yes | 36/558 (6.45) | 11/470 (2.34) | 25/88 (28.41) |
| No | 522/558 (93.55) | 459/470 (97.66) | 63/88 (71.59) |
| Child MHC diagnoses | | | |
| Anxiety disorders | 27/44 (61.36) | 7/13 (53.85) | 20/31 (64.52) |
| Post-traumatic stress disorder | 7/44 (15.91) | 2/13 (15.39) | 1/31 (3.22) |
| Depression | 3/44 (6.82) | 2/13 (15.39) | 5/31 (16.13) |
| Other | 7/44 (15.91) | 2/13 (15.39) | 5/31 (16.13) |

Values are expressed as n (%) unless otherwise specified. *item numbering refers to the question number in the survey. CYP, children and young people; SEN, special educational needs; MHC, pre-existing mental health condition
Table 2. Chi-square analyses assessing relationships between SEN and CYP's sleep

| Question* | CYP without SEN (n=471) | CYP with SEN (n=88) | χ² | p | Φc |
|-----------|-------------------------|---------------------|-----|---|----|
| 21a. Does your child have a regular bedtime? Before the pandemic: | | | | | |
| **Yes** | 449/471 (95.33) | 82/88 (93.18) | 0.72 | 0.397 | 0.04 |
| **No** | 22/471 (4.67) | 6/88 (6.82) | | | |
| 21b. Does your child have a regular bedtime? Now: | | | | | |
| **Yes** | 264/467 (56.53) | 46/87 (52.87) | 0.40 | 0.528 | 0.03 |
| **No** | 203/467 (43.47) | 41/87 (47.13) | | | |
| 22a. Does your child have a regular wake-up time? Before the pandemic: | | | | | |
| **Yes** | 456/471 (96.82) | 82/88 (93.18) | 2.71 | 0.100 | 0.07 |
| **No** | 15/471 (3.18) | 6/88 (6.82) | | | |
| 22b. Does your child have a regular wake-up time? Now: | | | | | |
| **Yes** | 247/470 (52.55) | 38/88 (43.18) | 2.61 | 0.107 | 0.07 |
| **No** | 223/470 (47.45) | 50/88 (56.82) | | | |
| 23a. How has your child’s sleep pattern been affected by the pandemic? Going to bed: | | | | | |
| **No change** | 81/470 (17.23) | 21/88 (23.86) | 11.83 | 0.006 | 0.15 |
| **Earlier** | 3/470 (0.64) | 4/88 (4.55) | | | |
| **Later** | 386/470 (82.13) | 63/88 (71.59) | | | |
| 23b. How has your child’s sleep pattern been affected by the pandemic? Getting up: | | | | | |
| **No change** | 120/470 (25.53) | 24/88 (27.27) | 0.48 | 0.828 | 0.03 |
| **Earlier** | 36/470 (7.66) | 5/88 (5.68) | | | |
| **Later** | 314/470 (66.81) | 59/88 (67.05) | | | |
| 26. Overall, how has the amount of sleep your child is getting changed during the pandemic? | | | | | |
| **No change** | 150/470 (31.91) | 23/87 (26.44) | 1.04 | 0.595 | 0.04 |
| **Less sleep** | 198/470 (42.13) | 40/87 (45.98) | | | |
| **More sleep** | 122/470 (25.96) | 24/87 (27.59) | | | |
| 28a. Has your child been going to bed after you? Before the pandemic: | | | | | |
| **Yes** | 23/470 (4.89) | 8/88 (9.09) | 2.49 | 0.115 | 0.07 |
| **No** | 447/470 (95.11) | 80/88 (90.91) | | | |
| 28b. Has your child been going to bed after you? Now: | | | | | |
| **Yes** | 119/466 (25.54) | 28/88 (31.82) | 1.50 | 0.221 | 0.05 |
| **No** | 347/466 (74.46) | 60/88 (68.18) | | | |
| 29. Is your child currently reporting more nightmares or vivid dreams? | | | | | |
| **Yes** | 111/470 (23.62) | 23/88 (26.14) | 0.26 | 0.612 | 0.02 |
| **No** | 359/470 (76.38) | 65/88 (73.86) | | | |
| 30. Is your child currently experiencing more night terrors, sleepwalking, bedwetting? | | | | | |
| **Yes** | 50/469 (10.66) | 7/88 (7.95) | 0.59 | 0.442 | 0.03 |
| **No** | 419/469 (89.34) | 81/88 (92.05) | | | |
| 31. Is your child currently getting up or waking up more during the night? | | | | | |
| **Yes** | 128/471 (27.18) | 36/88 (40.91) | 6.75 | 0.009 | 0.11 |
| **No** | 343/471 (72.82) | 52/88 (59.09) | | | |
| 32. Is your child currently getting into your bed more during the night? | | | | | |
| **Yes** | 75/470 (15.96) | 11/88 (12.50) | 0.68 | 0.410 | 0.04 |
| **No** | 395/470 (84.04) | 77/88 (87.50) | | | |
| 33. Is your child currently finding it harder to get to sleep? | | | | | |
| **Yes** | 257/469 (54.80) | 58/88 (65.91) | 3.72 | 0.054 | 0.08 |
| **No** | 212/469 (45.20) | 30/88 (34.09) | | | |
out SEN were found for other questions on sleep (Table 2).

**Impact of the pandemic on mental wellbeing in CYP**

A significant association was found between SEN and CYP being more demotivated during the pandemic ($\chi^2[3, 517]=31.34, p<0.001$); 61.44% of CYP with SEN reported being "a lot more" or "moderately more" demotivated during the pandemic compared with 31.57% of CYP without SEN (Table 3).

A significant association was found between SEN and CYP being more depressed, sad, or tearful during the pandemic ($\chi^2[3, 517]=11.94, p=0.008$); 36.15% of CYP with SEN reported being "a lot more" or "moderately more" depressed, sad, or tearful during the pandemic compared with 19.35% of CYP without SEN.

A significant association was found between SEN and CYP being more anxious or stressed during the pandemic ($\chi^2[3, 521]=26.19, p<0.001$); 41.67% of CYP with SEN reported being "a lot more" or "moderately more" anxious or stressed during the pandemic compared with 18.54% of CYP without SEN.

A significant association was found between SEN and increased anxiety, making sleep worse in CYP during the pandemic ($\chi^2[3, 393]=29.61, p<0.001$); 43.48% of CYP with SEN reported that increased anxiety was making their sleep "a lot worse" or "moderately worse" during the pandemic compared with 14.82% of CYP without SEN.

A significant association was found between SEN and reduced sleep in CYP, which had an impact on their wellbeing during the pandemic ($\chi^2[3, 334]=10.92, p=0.001$); 74.60% of CYP with SEN reported that their reduced sleep had an impact on their wellbeing compared with 51.66% of CYP without SEN.

Finally, a significant association was found between SEN and CYP missing their friends during the pandemic ($\chi^2[3, 557]=18.74, p<0.001$); 76.22% of CYP without SEN reported that they were missing their friends "a lot" or "moderately" during the pandemic compared with 54.65% of CYP with SEN.

No other significant differences between CYP with and without SEN were found for the other questions on mental wellbeing (Table 3).

**DISCUSSION**

This study assessed the differential impact of the pandemic on sleep and wellbeing in CYP with and without SEN. The proportion of CYP with SEN in this sample (15.74%) was representative of the UK population (12.20%).

**Impact of the pandemic on sleep patterns**

Changes in sleep patterns during the pandemic were reported in both groups, and they were largely similar (Table 2); the majority of CYP in both groups reported having more irregular bedtime and wake-up times, going to bed later, getting up later, and finding it harder to get to sleep. Almost half of the CYP also reported getting less sleep during the pandemic. These findings, therefore, agree with other studies reporting changes in sleep patterns of CYP during the pandemic.

It has been suggested that such sleep changes may have resulted from sudden changes in everyday life of CYP, including socializing with peers, extracurricular activities, schooling, and a transition to electronic-based learning.

While CYP with SEN were thought to be particularly vulnerable to disturbed sleep during the pandemic, only two significant differences between CYP with and without SEN were found; CYP with SEN were more likely to get up or wake up during the night and go to bed earlier during the pandemic. Taken together, these findings suggest that while the pandemic had a clear impact on sleep patterns for both CYP with and without SEN, CYP with SEN had more disturbed sleep.

**Impact of the pandemic on mental wellbeing**

More CYP with SEN reported experiencing a worsening of
Table 3. Chi-square analyses assessing the relationships between SEN and CYP’s wellbeing

| Question* | CYP without SEN (n=471) | CYP with SEN (n=88) | χ² | p     | Φc |
|-----------|-------------------------|---------------------|----|-------|----|
| 47. Has your child’s reduced sleep had an impact on their own wellbeing? | | | | | |
| Yes       | 140/271 (51.66)         | 47/63 (74.60)       | 10.92  | 0.001  | 0.18 |
| No        | 131/271 (48.34)         | 16/63 (25.40)       |       |       |     |
| 48. Has your child become more hyperactive during the pandemic? | | | | | |
| Not a lot | 289/435 (66.44)         | 45/82 (54.88)       | 4.82   | 0.186  | 0.10 |
| A little  | 99/435 (22.76)          | 23/82 (28.05)       |       |       |     |
| Moderately| 30/435 (6.90)           | 8/82 (9.76)         |       |       |     |
| A lot     | 17/435 (3.91)           | 6/82 (7.32)         |       |       |     |
| 49. Has your child become more demotivated during the pandemic? | | | | | |
| Not a lot | 105/434 (24.19)         | 12/83 (14.46)       | 31.34  | <0.001 | 0.25 |
| A little  | 192/434 (44.24)         | 20/83 (24.10)       |       |       |     |
| Moderately| 65/434 (14.98)          | 17/83 (20.48)       |       |       |     |
| A lot     | 72/434 (16.59)          | 34/83 (40.96)       |       |       |     |
| 50. Has your child become more depressed, sad, or tearful during the pandemic? | | | | | |
| Not a lot | 209/434 (48.16)         | 29/83 (34.94)       | 11.94  | 0.008  | 0.15 |
| A little  | 141/434 (32.49)         | 24/83 (28.92)       |       |       |     |
| Moderately| 48/434 (11.06)          | 18/83 (21.69)       |       |       |     |
| A lot     | 36/434 (8.29)           | 12/83 (14.46)       |       |       |     |
| 51. Has your child been more anxious or stressed during the pandemic? | | | | | |
| Not a lot | 188/437 (43.02)         | 20/84 (23.81)       | 26.19  | <0.001 | 0.22 |
| A little  | 168/437 (38.44)         | 29/84 (34.52)       |       |       |     |
| Moderately| 45/437 (10.30)          | 15/84 (17.86)       |       |       |     |
| A lot     | 36/437 (8.24)           | 20/84 (23.81)       |       |       |     |
| 52. Has increased anxiety made your child’s sleep worse? | | | | | |
| Not a lot | 167/324 (51.54)         | 22/69 (31.88)       | 29.61  | <0.001 | 0.28 |
| A little  | 109/324 (33.64)         | 17/69 (24.64)       |       |       |     |
| Moderately| 25/324 (7.72)           | 15/69 (21.74)       |       |       |     |
| A lot     | 23/324 (7.10)           | 15/69 (21.74)       |       |       |     |
| Reasons given for increased anxiety | | | | | |
| Changes to daily routine | 55/295 (18.64) | 21/84 (25.00) | - | - | - |
| Isolation and/or missing friends/family | 92/295 (31.19) | 16/84 (19.05) | - | - | - |
| Themselves and/or friends/family getting ill and/or dying from COVID-19 | 80/295 (27.12) | 24/84 (28.57) | - | - | - |
| School and/or schoolwork | 42/295 (14.24) | 18/84 (21.43) | - | - | - |
| Other | 26/295 (8.81) | 5/84 (5.95) | - | - | - |
| 59. Has your child missed their friends during the pandemic? | | | | | |
| Not a lot | 13/471 (2.76)           | 7/86 (8.14)         | 18.74  | <0.001 | 0.18 |
| A little  | 99/471 (21.02)          | 32/86 (37.21)       |       |       |     |
| Moderately| 104/471 (22.08)         | 15/86 (17.44)       |       |       |     |
| A lot     | 255/471 (54.14)         | 32/86 (37.21)       |       |       |     |
| 60. Has your child felt lonely during the pandemic? | | | | | |
| Not a lot | 132/470 (28.09)         | 25/83 (30.12)       | 2.47   | 0.480  | 0.07 |
| A little  | 182/470 (38.72)         | 28/83 (33.73)       |       |       |     |
| Moderately| 77/470 (16.38)          | 11/83 (13.25)       |       |       |     |
| A lot     | 79/470 (16.81)          | 19/83 (22.89)       |       |       |     |

Values are expressed as n (%). *item numbering refers to the question number in the survey. SEN, special educational needs; CYP, children and young people

https://www.e-jsm.org
their mental wellbeing during the pandemic compared to CYP without SEN; CYP with SEN were more likely to report being a lot or moderately more demotivated, more depressed, sad, or tearful, and more anxious or stressed than CYP without SEN. The main reasons given for increased anxiety were changes to daily routines, isolation and/or missing friends/family, themselves and/or friends/family getting ill and/or dying from COVID-19, and school and/or schoolwork. CYP with SEN are considerably more likely to be diagnosed with a mental health condition than their peers, and recent research suggests that many CYP diagnosed with mental health conditions before the pandemic experienced a worsening of symptoms during lockdown. Consistent with these reports, 28.41% of CYP with SEN in this study reported having a pre-diagnosed mental health condition, compared to 2.34% of CYP without SEN, which may partially explain these findings.

Notably, 43.48% of CYP with SEN reported that increased anxiety due to the pandemic was making their sleep a lot or moderately worse compared to only 14.82% of CYP without SEN. Moreover, 74.60% of CYP with SEN reported that less sleep during the pandemic impacted their wellbeing a lot or moderately compared to 51.66% of children without SEN. These findings suggest that despite the pandemic having a largely similar impact on the sleep patterns of CYP with and without SEN, such changes disproportionately affected the mental wellbeing of CYP with SEN. While the link between poor sleep and mental wellbeing during the pandemic has been previously reported, this is the first time to the authors’ knowledge that a link between poor sleep and mental wellbeing has been reported in CYP with SEN. Interestingly, these findings may indicate that the bidirectional relationship between sleep and mental wellbeing is stronger for CYP with SEN, although this requires further investigation.

Many CYP with SEN rely on established routines and access to special services to improve their wellbeing and independence, and sudden changes in routines can exacerbate mental health symptoms. It is therefore plausible that the disruption caused by lockdown created highly stressful environments for CYP with SEN and their families and partially account for their worsening mental wellbeing and sleep patterns during the pandemic. Non-pharmacological sleep interventions have been shown to improve both sleep and symptoms of anxiety in CYP with and without SEN. Making evidence-based interventions widely accessible to both CYP with and without SEN may be one way to help improve both sleep and anxiety levels in CYP. However, further work is required to understand how to best support CYP with SEN and their families as they seek to re-establish new routines and live with the uncertainty of future lockdowns and restrictions.

Impact of the pandemic on peer relationships

CYP without SEN missed their friends more during the pandemic than CYP with SEN, although no group differences were found for feeling lonely. There is evidence that CYP with SEN experience lower levels of peer acceptance, have fewer friendships, and are more likely to experience bullying or victimisation than CYP without SEN. It is, therefore, possible that CYP without SEN may have had stronger peer relationships and experienced greater peer acceptance than CYP with SEN, resulting in them missing their friends more.

Limitations

This study used a cross-sectional design in which parents/caregivers reported their child’s sleep and mental wellbeing before and during the pandemic. However, both retrospective and parent-reported surveys have clear and well-documented limitations. In particular, although parent-report surveys provide rich and important insights, they may not have face validity, correspond to CYP self-reports, or be a proxy for more accurate behavioral or physiological assessments.

Second, because this survey was cross-sectional, we were unable to assess whether the sleep problems reported were short-term and resolved after the initial lockdown, or whether long-term sleep disruptions and poorer mental wellbeing persisted. Therefore, a follow-up survey is planned to capture the potential long-term impact of the pandemic on sleep and mental wellbeing in this sample of CYP. Future work should also aim to assess potentially important COVID-19-related factors, such as personal loss and family financial strain, which may predict or maintain sleep disturbances in CYP.

Finally, this study used opportunistic sampling, with parents/caregivers opting in online, which could have resulted in a sampling bias. Thus, the results of this study are likely not representative of all communities in the UK.

Conclusions

This study suggests that while the majority of CYP in both groups reported sleep changes during the pandemic, CYP with SEN experienced more sleep disturbance. The findings provide initial evidence to suggest that the pandemic may have had a greater impact on the sleep and mental wellbeing of CYP with SEN compared with those without SEN, and that the bidirectional relationship between mental health and sleep may be stronger for CYP with SEN. While further work is needed, this work demonstrates the importance of a better understanding of the impact of the pandemic on CYP with and without SEN in order to develop and deliver effective interventions to mitigate the effects of the pandemic on sleep and mental wellbeing in CYP.
Supplementary Materials

The online-only Data Supplement is available with this article at https://doi.org/10.13078/jsm.220004.

Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

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Supplementary Materials: Questions of Online Survey

Introduction

Dear parent/guardian,

The Sleep Charity (www.thesleepcharity.org.uk) and Sheffield Children’s NHS Foundation Trust (www.sheffieldchildrens.nhs.uk) have partnered with NIHR Children and Young People MedTech Co-operative (www.cypmedtech.nihr.ac.uk) to produce this survey.

The survey will look specifically at changes to children’s sleep patterns, the reasons for these changes, and the impact of these changes as we recover from the COVID-19 pandemic in the UK and as children start to go back to school. Our aim is to gain a greater understanding of the effect of the pandemic on children’s sleep and to raise awareness. Completing this survey will enable us to identify different ways of providing support to families in need.

The survey will take about 15 minutes to complete and we’d be grateful if you could spare the time to complete one for each child in your household under the age of 18 years, whether they have had sleep problems or not. Please feel free to skip any questions you would prefer not to answer.

This survey is anonymous. If you are happy for us to contact you again for follow up, please provide your email address at the end of the survey.

Please contact us if you have any questions (cypmedtech@nihr.ac.uk).

Thank you for taking the time to complete this survey.
About you (parent/guardian)

1. What is your employment status?
   - Key worker
   - Working on business premises
   - Working from home
   - Not working (including being made redundant or furloughed)
   - Other (please specify):

2. What is your marital status?
   - Single
   - Married
   - Other (please specify):

3. What is the first half of your postcode (e.g., S10)?

4. How many children are in your household?

5. Have you, a close friend, or family member been hospitalised with COVID-19?
   - Yes
   - No

6. Have you personally had increased anxiety or stress due to the pandemic?
   - Not at all
   - A little
   - Moderately
   - A lot
7. Has your sleep pattern been affected by the pandemic?

|              | Over 2 hours earlier | 1-2 hours earlier | Up to 1 hour earlier | No change | Up to 1 hour later | 1-2 hours later | Over 2 hours later |
|--------------|----------------------|-------------------|----------------------|-----------|-------------------|-----------------|-------------------|
| Going to bed | □                    | □                 | □                    | □         | □                 | □               | □                 |
| Getting up   | □                    | □                 | □                    | □         | □                 | □               | □                 |

8. How much has your use of electronic devices (e.g., TVs, tablets, gaming machines, phones, computers) changed per day during the pandemic?

|              | Over 2 hours less | 1-2 hours less | Up to 1 hour less | No change | Up to 1 hour more | 1-2 hours more | Over 2 hours more |
|--------------|------------------|----------------|------------------|-----------|-------------------|----------------|-------------------|
| During the day | □               | □              | □                | □         | □                 | □              | □                 |
| At bedtime   | □                | □              | □                | □         | □                 | □              | □                 |

9. How much has the amount of exercise you usually do per week changed during the pandemic?

- □ Over 2 hours less
- □ 1-2 hours less
- □ Up to 1 hour less
- □ No change
- □ Up to 1 hour more
- □ 1-2 hours more
- □ Over 2 hours more

10. Has your weight changed during the pandemic?

- □ No change
- □ Lost weight
- □ Gained weight
- □ Don’t know
About your child

11. How old is your child (in years)?

12. What is your child's gender?
   □ Male
   □ Female

13. Which type of school does your child usually attend?
   □ Private day nursery
   □ Childminder
   □ Pre-school
   □ State school
   □ Independent school
   □ Special school
   □ Home
   □ Other (please specify):

14. Which school year are they in/would they be in currently?

15. Did your child attend school in person during lockdown in March, April, and/or May?
   □ Yes
   □ No

16. Has your child been back to school in person since the beginning of June?
   □ Yes
   □ No

17. Does your child have special educational needs?
18. Is your child currently under assessment or on a waiting list for an additional need?
☐ Yes
☐ No

19. Does your child have a pre-existing mental health diagnosis?
☐ Yes
☐ No

If yes, what is their diagnosis (depression/anxiety/other)?

20. Has your child been seeing a therapist or counsellor for a mental health condition?

|                          | Yes | No |
|--------------------------|-----|----|
| Before the pandemic      |     |    |
| Now                      |     |    |
About your child’s sleep pattern during the pandemic compared with before the pandemic

21. Does your child have a regular bedtime?

|                  | Yes | No |
|------------------|-----|----|
| Before the pandemic | ☐   | ☐  |
| Now              | ☐   | ☐  |

22. Does your child have a regular wake-up time?

|                  | Yes | No |
|------------------|-----|----|
| Before the pandemic | ☐   | ☐  |
| Now              | ☐   | ☐  |

23. How has your child's sleep pattern been affected by the pandemic (excluding any effect of changes in daylight hours)?

|                  | Over 2 hours earlier | 1-2 hours earlier | Up to 1 hour earlier | No change | Up to 1 hour later | 1-2 hours later | Over 2 hours later |
|------------------|----------------------|-------------------|----------------------|-----------|--------------------|-----------------|-------------------|
| Going to bed     | ☐                    | ☐                 | ☐                    | ☐         | ☐                  | ☐               | ☐                 |
| Getting up       | ☐                    | ☐                 | ☐                    | ☐         | ☐                  | ☐               | ☐                 |

24. How has the time it takes your child to get to sleep at bedtime changed during the pandemic?

☐ Up to 1 hour faster
☐ No change
☐ Up to 1 hour longer
☐ 1-2 hours longer
☐ Over 2 hours longer

25. How has your child been woken up during the pandemic (select all that apply)?

☐ By you
☐ By an alarm
☐ By themselves (naturally)
☐ Other (please specify):

26. Overall, how has the amount of sleep your child is getting changed during the pandemic?
27. How is your child’s sleep routine different at the weekends compared to weekdays?

|                         | Over 2 hours earlier | 1-2 hours earlier | Up to 1 hour earlier | No change | Up to 1 hour later | 1-2 hours later | Over 2 hours later |
|-------------------------|----------------------|-------------------|----------------------|-----------|--------------------|-----------------|-------------------|
| Before the pandemic     | □                    | □                 | □                    | □         | □                  | □               | □                 |
| Now                     | □                    | □                 | □                    | □         | □                  | □               | □                 |

28. Has your child been going to bed after you?

Yes ☐ No ☐

Before the pandemic ☐ ☐

Now ☐ ☐

29. Is your child currently reporting more nightmares or vivid dreams?

Yes ☐ No ☐

30. Is your child currently experiencing more night terrors, sleepwalking, bedwetting?

Yes ☐ No ☐

31. Is your child currently getting up or waking up more during the night?

Yes ☐ No ☐

32. Is your child currently getting into your bed more during the night?

Yes ☐
☐ No
About your child’s activities around bedtime during the pandemic compared with before the pandemic

33. Is your child currently finding it harder to get to sleep?
   □ Yes
   □ No

34. Does your child need a parent/carer to be with them at bedtime?

   | Yes | No |
   |-----|----|
   | Before the pandemic | □  | □  |
   | Now | □  | □  |

35. Does your child use electronic devices (e.g., TVs, tablets, gaming machines, phones, computers) in the hour before bedtime?

   | Yes | No |
   |-----|----|
   | Before the pandemic | □  | □  |
   | Now | □  | □  |
About your child’s daytime activities during the pandemic compared with before the pandemic

36. During the day, which electronic devices has your child been using for recreation and education during the pandemic (select all that apply)?

|        | TV | Tablet | Phone | Gaming machines | Computer |
|--------|----|--------|-------|-----------------|----------|
| Recreation |    |        |       |                 |          |
| Education  |    |        |       |                 |          |

Other (please specify):

37. How has your child's daytime use of electronic devices changed during the pandemic?

|        | Over 2 hours less | 1-2 hours less | Up to 1 hour less | No change | Up to 1 hour more | 1-2 hours more | Over 2 hours more |
|--------|-------------------|----------------|-------------------|-----------|-------------------|----------------|-------------------|
| Recreation |    |                |                  |           |                   |                |                   |
| Education |    |                |                  |           |                   |                |                   |

38. How has the amount of exercise your child usually does per week changed during the pandemic?

- [ ] Over 2 hours less
- [ ] 1-2 hours less
- [ ] Up to 1 hour less
- [ ] No change
- [ ] Up to 1 hour more
- [ ] 1-2 hours more
- [ ] Over 2 hours more

39. Has your child's weight changed during the pandemic?

- [ ] No change
- [ ] Lost weight
- [ ] Gained weight
- [ ] Don’t know

40. Have your child’s mealtimes and other daytime routines changed during the pandemic?

- [ ] Yes
☐ No

If yes, please specify (e.g., missing meals, skipping breakfast, more snacking, mealtimes changed because of sleep pattern):




About the impact of your child’s reduced sleep (if applicable)

If this section is not applicable to you (i.e., your child has not been experiencing reduced sleep), please skip to the next section.

41. Has your child’s reduced sleep had an impact on your wellbeing?
   - Yes
   - No
   - Not applicable

42. Have you been more depressed, anxious, stressed, sad, tearful (due to your child’s sleep problem)?
   - Not at all
   - A little
   - Moderately
   - A lot
   - Not applicable

43. Have you found it more difficult to cope (due to your child’s sleep problem)?
   - Not at all
   - A little
   - Moderately
   - A lot
   - Not applicable

44. Have you been physically unwell (due to your child’s sleep problem)?
   - Not at all
   - A little
   - Moderately
   - A lot
   - Not applicable

45. Has your child’s reduced sleep had an impact on their siblings’ wellbeing?
   - Yes
   - No
   - Not applicable

46. Have any siblings been more depressed, anxious, stressed, sad, or tearful (due to your child’s sleep problem)?
☐ Not at all
☐ A little
☐ Moderately
☐ A lot
☐ Not applicable

47. Has your child’s reduced sleep had an impact on their own wellbeing?
☐ Yes
☐ No
☐ Not applicable

48. Has your child become more hyperactive during the pandemic?
☐ Not at all
☐ A little
☐ Moderately
☐ A lot

49. Has your child become more demotivated during the pandemic?
☐ Not at all
☐ A little
☐ Moderately
☐ A lot

50. Has your child become more depressed, sad, or tearful during the pandemic?
☐ Not at all
☐ A little
☐ Moderately
☐ A lot

51. Has your child been more anxious or stressed during the pandemic?
☐ Not at all
☐ A little
☐ Moderately
☐ A lot

If yes, what is the main cause of their anxiety (concerns about getting ill themselves, concerns about a family member getting ill, difficulty coping with changes to their routine, coping with reduced social contact, other)?
52. Has increased anxiety made your child’s sleep worse?
   □ Not at all
   □ A little
   □ Moderately
   □ A lot
   □ Not applicable

53. If your child already suffered with mental health conditions, have these been worse during the pandemic?
   □ Not at all
   □ A little
   □ Moderately
   □ A lot
   □ Not applicable
About how much home-schooling has had an impact on your child’s sleep pattern

54. How much has not going to school in person led to a change in your child’s sleep routine?
   - Not at all
   - A little
   - Moderately
   - A lot
   - Not applicable

What has been the main change?

55. How has your child's happiness changed while being home schooled?
   - Much more unhappy
   - Moderately more unhappy
   - A little more unhappy
   - No change
   - A little more happy
   - Moderately more happy
   - Much more happy
   - Not applicable

56. Has home schooling affected your child's anxiety/stress levels?
   - A lot more anxious/stressed
   - Moderately more anxious/stressed
   - A little more anxious/stressed
   - No change
   - A little less anxious/stressed
   - Moderately less anxious/stressed
   - A lot less anxious/stressed
   - Not applicable

57. Has home schooling affected your anxiety/stress levels?
   - A lot more anxious/stressed
58. Will you consider home schooling after the pandemic?
   - Yes
   - No
   - Not applicable

59. Has your child missed their friends during the pandemic?
   - Not at all
   - A little
   - Moderately
   - A lot

60. Has your child felt lonely during the pandemic?
   - Not at all
   - A little
   - Moderately
   - A lot

61. How has your child been socialising with their friends during the pandemic (select all that apply)?
   - Hasn’t been socialising with friends
   - Phone messaging
   - Social media
   - Gaming
   - Phone calls
   - Video calls
   - Incidental meetings during daily exercise
   - Other (please specify):

62. Has your child been socialising with their friends online after midnight?
|                                | Yes | No | Don’t know |
|--------------------------------|-----|----|------------|
| Before the pandemic            |     |    |            |
| Now                            |     |    |            |

63. Has your child been doing school work in their bedroom?

|                                | Yes | No |
|--------------------------------|-----|----|
| Before the pandemic            |     |    |
| Now                            |     |    |
About your child’s sleep and the transition back to school

64. Does your child want to go back to school?
   - Yes
   - Doesn’t mind
   - No
   - Not applicable

65. Is your child anxious about going back to school?
   - Yes
   - No
   - Not applicable

66. Is your child afraid of going back to school due to COVID-19?
   - Yes
   - No
   - Not applicable

67. Is your child anxious about what it will be like when they go back to school?
   - Yes
   - No
   - Not applicable

68. Is anxiety about going back to school currently having an impact on your child’s sleep?
   - Yes
   - No
   - Not applicable

69. Is your child anxious that it will be difficult to get their sleep pattern back to normal when they go back to school?
   - Yes
   - No
   - Not applicable

70. Are you anxious that it will be difficult to get your child’s sleep pattern back to normal when they go back to school?
About your child and hospital/medications during the pandemic

71. Who have you contacted about your child’s sleep problems during the pandemic (select all that apply)?
   □ Not applicable
   □ No one
   □ GP
   □ Health visitor
   □ Other (please specify):

72. Have you had a hospital appointment for your child’s sleep problems during the pandemic?
   □ Yes
   □ No

73. Has your child been prescribed any additional medication for sleep problems during the pandemic?
   □ Yes
   □ No

   If so, was this medication regular or occasional?

74. If support from a sleep practitioner was available, would you be interested?
   □ Yes
   □ No

75. If support from a sleep app was available, would you be interested?
   □ Yes
   □ No

76. Please feel free to add any further comments below.

77. If you are happy for us to contact you again to follow up on your responses to this survey, please provide your email address below.

Email address
Thank you for taking the time to complete this survey.

Please contact us if you have any questions or would like any further information (cypmedtech@nihr.ac.uk).

The Sleep Charity: www.thesleepcharity.org.uk
Sheffield Children's NHS Foundation Trust: www.sheffieldchildrens.nhs.uk
NIHR Children and Young People MedTech Co-operative: www.cypmedtech.nihr.ac.uk
## Supplementary Table 1. Results of online survey responses

### Descriptive statistics

| Question | Total \((n = 559)\) | CYP without SEN \((n = 471)\) | CYP with SEN \((n = 88)\) |
|----------|-------------------|------------------------|-------------------|
| **About you (parent/guardian)** | | | |
| 1 What is your employment status? | | | |
| Key worker | 187/559 (33.45) | 167/471 (35.46) | 20/88 (22.73) |
| Working on business premises | 9/559 (1.61) | 7/471 (1.49) | 2/88 (2.27) |
| Working from home | 195/559 (34.88) | 169/471 (35.88) | 26/88 (29.55) |
| Not working (including being made redundant or furloughed) | 111/559 (19.86) | 91/471 (19.32) | 20/88 (22.73) |
| Other | 57/559 (10.20) | 37/471 (7.86) | 20/88 (22.73) |
| 2 What is your marital status? | | | |
| Single | 400/557 (71.81) | 345/469 (73.56) | 55/88 (62.50) |
| Married | 84/557 (15.08) | 64/469 (13.65) | 20/88 (22.73) |
| Other | 73/557 (13.11) | 60/469 (12.79) | 13/88 (14.77) |
| 3 How many children are in your household? median (range) | 2 (1-6) | 2 (1-6) | 2 (1-5) |
| 4 Have you, a close friend, or family member been hospitalised with COVID-19? | | | |
| Yes | 33/557 (5.92) | 28/469 (5.97) | 5/88 (5.68) |
| No | 524/557 (94.08) | 441/469 (94.03) | 83/88 (94.32) |
| 5 Have you personally had increased anxiety or stress due to the pandemic? | | | |
| Not at all | 51/559 (9.12) | 45/469 (9.55) | 6/88 (6.82) |
| A little | 262/559 (46.87) | 225/469 (47.77) | 37/88 (42.05) |
| Moderately | 156/559 (27.91) | 132/469 (28.03) | 24/88 (27.27) |
| A lot | 90/559 (16.10) | 69/469 (14.65) | 21/88 (23.86) |
| 7a Has your sleep pattern been affected by the pandemic? Going to bed: | | | |
| Over 2 hours earlier | 6/559 (1.07) | 2/471 (0.42) | 4/88 (4.55) |
| 1-2 hours earlier | 21/559 (3.76) | 19/471 (4.03) | 2/88 (2.27) |
| Up to 1 hour earlier | 20/559 (3.58) | 15/471 (3.18) | 5/88 (5.68) |
| No change | 164/559 (29.34) | 143/469 (30.36) | 21/88 (23.86) |
| Up to 1 hour later | 118/559 (21.11) | 106/469 (22.51) | 12/88 (13.64) |
| 1-2 hours later | 153/559 (27.37) | 125/469 (26.54) | 28/88 (31.82) |
| Over 2 hours later | 77/559 (13.77) | 61/469 (12.65) | 16/88 (18.18) |
| 7b Has your sleep pattern been affected by the pandemic? Getting up: | | | |
| Over 2 hours earlier | 19/554 (3.43) | 11/468 (2.35) | 8/86 (9.30) |
| 1-2 hours earlier | 40/554 (7.22) | 32/468 (6.84) | 8/86 (9.30) |
| Up to 1 hour earlier | 41/554 (7.40) | 37/468 (7.91) | 4/86 (4.65) |
| No change | 179/554 (32.31) | 150/468 (32.05) | 29/86 (33.72) |
| Up to 1 hour later | 140/554 (25.27) | 126/468 (26.92) | 14/86 (16.28) |
| 1-2 hours later | 109/554 (19.68) | 90/468 (19.23) | 19/86 (22.09) |
| Over 2 hours later | 26/554 (4.69) | 22/468 (4.70) | 4/86 (4.65) |
| 8a How much has your use of electronic devices changed per day during the pandemic? During the day: | | | |
| Over 2 hours less | 13/558 (2.33) | 9/470 (1.91) | 4/88 (4.55) |
| 1-2 hours less | 7/558 (1.25) | 5/470 (1.06) | 2/88 (2.27) |
| Up to 1 hour less | 3/558 (0.54) | 2/470 (0.43) | 1/88 (1.14) |
| No change | 118/558 (21.15) | 103/470 (21.91) | 15/88 (17.05) |
| Up to 1 hour more | 91/558 (16.31) | 78/470 (16.60) | 13/88 (14.77) |
| 1-2 hours more | 134/558 (24.01) | 109/467 (23.19) | 25/88 (28.41) |
| Over 2 hours more | 192/558 (34.41) | 164/470 (34.89) | 28/88 (31.82) |
8b How much has your use of electronic devices changed per day during the pandemic? At bedtime:

- Over 2 hours less: $\frac{3}{542}$ (0.55), $\frac{0}{456}$ (0.00), $\frac{3}{86}$ (3.49)
- 1-2 hours less: $\frac{5}{542}$ (0.92), $\frac{5}{456}$ (1.10), $\frac{0}{86}$ (0.00)
- Up to 1 hour less: $\frac{14}{542}$ (2.58), $\frac{9}{456}$ (1.97), $\frac{5}{86}$ (5.81)
- No change: $\frac{314}{542}$ (57.93), $\frac{268}{456}$ (58.77), $\frac{46}{86}$ (53.49)
- Up to 1 hour more: $\frac{120}{542}$ (22.14), $\frac{104}{456}$ (22.81), $\frac{16}{86}$ (18.60)
- 1-2 hours more: $\frac{50}{542}$ (9.23), $\frac{42}{456}$ (9.21), $\frac{8}{86}$ (9.30)
- Over 2 hours more: $\frac{36}{542}$ (6.64), $\frac{28}{456}$ (6.14), $\frac{8}{86}$ (9.30)

9 How much has the amount of exercise you usually do per week changed during the pandemic?

- Over 2 hours less: $\frac{129}{559}$ (23.08), $\frac{107}{471}$ (22.72), $\frac{22}{88}$ (25.00)
- 1-2 hours less: $\frac{82}{559}$ (14.67), $\frac{70}{471}$ (14.86), $\frac{12}{88}$ (13.64)
- Up to 1 hour less: $\frac{40}{559}$ (7.16), $\frac{33}{471}$ (7.01), $\frac{7}{88}$ (7.95)
- No change: $\frac{106}{559}$ (18.96), $\frac{87}{471}$ (18.47), $\frac{19}{88}$ (21.59)
- Up to 1 hour more: $\frac{57}{559}$ (10.20), $\frac{49}{471}$ (10.40), $\frac{8}{88}$ (9.09)
- 1-2 hours more: $\frac{56}{559}$ (10.02), $\frac{49}{471}$ (10.40), $\frac{7}{88}$ (7.95)
- Over 2 hours more: $\frac{89}{559}$ (15.92), $\frac{76}{471}$ (16.14), $\frac{13}{88}$ (14.77)

10 Has your weight changed during the pandemic?

- No change: $\frac{143}{559}$ (25.58), $\frac{120}{471}$ (25.48), $\frac{23}{88}$ (26.14)
- Gained weight: $\frac{284}{559}$ (50.81), $\frac{239}{471}$ (50.74), $\frac{45}{88}$ (51.14)
- Lost weight: $\frac{74}{559}$ (13.24), $\frac{60}{471}$ (12.74), $\frac{14}{88}$ (15.91)
- Don’t know: $\frac{58}{559}$ (10.38), $\frac{52}{471}$ (11.04), $\frac{6}{88}$ (6.82)

About your child

11 How old is your child (in years)? median (range):

- Median: 10 (1-17), 10 (1-17), 12 (2-16)

12 What is your child’s gender?

- Male: $\frac{247}{559}$ (44.19), $\frac{193}{471}$ (40.98), $\frac{54}{88}$ (61.36)
- Female: $\frac{312}{559}$ (55.81), $\frac{278}{471}$ (59.02), $\frac{34}{88}$ (38.64)

13 Which type of school does your child usually attend?

- Private day nursery: $\frac{14}{559}$ (2.51), $\frac{12}{471}$ (2.55), $\frac{2}{88}$ (2.27)
- Childminder: $\frac{2}{559}$ (0.36), $\frac{2}{471}$ (0.43), $\frac{0}{88}$ (0.00)
- Pre-school: $\frac{26}{559}$ (4.66), $\frac{24}{471}$ (5.11), $\frac{2}{88}$ (2.27)
- State school: $\frac{466}{559}$ (83.51), $\frac{402}{471}$ (85.53), $\frac{64}{88}$ (72.73)
- Independent school: $\frac{26}{559}$ (4.66), $\frac{21}{471}$ (4.47), $\frac{5}{88}$ (5.68)
- Special school: $\frac{9}{559}$ (1.61), $\frac{0}{471}$ (0.00), $\frac{9}{88}$ (10.23)
- Home: $\frac{4}{559}$ (0.72), $\frac{3}{471}$ (0.64), $\frac{1}{88}$ (1.14)
- Other: $\frac{11}{559}$ (1.97), $\frac{6}{471}$ (1.28), $\frac{5}{88}$ (5.68)

14 Which school year are they in/would they be in currently?

- Pre-School / Nursery: $\frac{29}{548}$ (5.29), $\frac{25}{464}$ (5.39), $\frac{4}{84}$ (4.76)
- Reception: $\frac{39}{548}$ (7.12), $\frac{38}{464}$ (8.19), $\frac{1}{84}$ (1.19)
- KS1: $\frac{73}{548}$ (13.32), $\frac{70}{464}$ (15.09), $\frac{3}{84}$ (3.57)
- KS2: $\frac{188}{548}$ (34.31), $\frac{154}{464}$ (33.19), $\frac{34}{84}$ (40.48)
- KS3: $\frac{154}{548}$ (28.10), $\frac{129}{464}$ (27.80), $\frac{25}{84}$ (29.76)
- KS4: $\frac{58}{548}$ (10.58), $\frac{42}{464}$ (9.05), $\frac{16}{84}$ (19.05)
- Sixth Form / College: $\frac{7}{548}$ (1.28), $\frac{6}{464}$ (1.29), $\frac{1}{84}$ (1.19)

15 Did your child attend school in person during lockdown in March, April, and/or May?

- Yes: $\frac{58}{559}$ (10.38), $\frac{45}{471}$ (9.55), $\frac{13}{88}$ (14.77)
- No: $\frac{501}{559}$ (89.62), $\frac{426}{471}$ (90.45), $\frac{75}{88}$ (85.23)
### Question 16: Has your child been back to school in person since the beginning of June?

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 371/559 (66.37) | 314/471 (66.67)           | 57/88 (64.77)         |
| Yes| 188/559 (33.63) | 157/471 (33.33)           | 31/88 (35.23)         |

### Question 17: Does your child have special educational needs?

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 471/559 (84.26) | 471/471 (100.00)          | 0/88 (0.00)           |
| Yes| 88/559 (15.74)  | 0/471 (0.00)              | 88/88 (100.00)        |

### Question 18: Is your child currently under assessment or on a waiting list for an additional need?

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 525/555 (94.59)| 458/470 (97.45)           | 67/88 (78.82)         |
| Yes| 30/555 (5.41)  | 12/470 (2.55)             | 18/88 (21.18)         |

### Question 19: Does your child have a pre-existing mental health diagnosis?

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 522/558 (93.55)| 459/470 (97.66)           | 63/88 (71.59)         |
| Yes| 36/558 (6.45)  | 11/470 (2.34)             | 25/88 (28.41)         |

### Question 20a: Has your child been seeing a therapist or counsellor for a mental health condition? Before the pandemic:

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 512/557 (91.92)| 443/469 (94.46)           | 69/88 (78.41)         |
| Yes| 45/557 (8.08)  | 26/469 (5.54)             | 19/88 (21.59)         |

### Question 20b: Has your child been seeing a therapist or counsellor for a mental health condition? Now:

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 244/467 (52.55)| 203/467 (43.47)           | 41/87 (47.13)         |
| Yes| 18/555 (3.24)  | 12/468 (2.56)             | 6/87 (6.90)           |

### Question 21a: Does your child have a regular bedtime? Before the pandemic:

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 28/559 (5.01)  | 22/471 (4.67)             | 6/88 (6.82)           |
| Yes| 531/559 (94.99)| 449/471 (95.33)           | 82/88 (93.18)         |

### Question 21b: Does your child have a regular bedtime? Now:

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 244/467 (52.55)| 203/467 (43.47)           | 41/87 (47.13)         |
| Yes| 310/554 (55.96)| 264/467 (56.53)           | 46/87 (52.87)         |

### Question 22a: Does your child have a regular wake-up time? Before the pandemic:

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 21/559 (3.76)  | 15/471 (3.18)             | 6/88 (6.82)           |
| Yes| 538/559 (96.24)| 456/471 (96.82)           | 82/88 (93.18)         |

### Question 22b: Does your child have a regular wake-up time? Now:

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| No| 273/558 (48.92)| 223/470 (47.45)           | 50/88 (56.82)         |
| Yes| 285/558 (51.08)| 247/470 (52.55)           | 38/88 (43.18)         |

### Question 23a: How has your child’s sleep pattern been affected by the pandemic (excluding any effect of changes in daylight hours? Going to bed:

|   | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---|----------------|---------------------------|-----------------------|
| Over 2 hours earlier | 2/558 (0.36) | 0/470 (0.00) | 2/88 (2.27) |
| 1-2 hours earlier | 4/558 (0.72) | 3/470 (0.64) | 1/88 (1.14) |
| Up to 1 hour earlier | 1/558 (0.18) | 0/470 (0.00) | 1/88 (1.14) |
| No change | 102/558 (18.28) | 81/470 (17.23) | 21/88 (23.86) |
| Up to 1 hour later | 185/558 (33.15) | 164/470 (34.89) | 21/88 (23.86) |
| 1-2 hours later | 153/558 (27.42) | 136/470 (28.94) | 17/88 (19.32) |
| Over 2 hours later | 111/558 (19.89) | 86/470 (18.30) | 25/88 (28.41) |
effect of changes in daylight hours?

### Getting up:

| Time Change          | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|--------------------------|----------------------|
| Over 2 hours earlier | 3/558 (0.54)   | 2/470 (0.43)             | 1/88 (1.14)          |
| 1-2 hours earlier    | 13/558 (2.33)  | 12/470 (2.55)            | 1/88 (1.14)          |
| Up to 1 hour earlier | 25/558 (4.48)  | 22/470 (4.68)            | 3/88 (3.41)          |
| No change            | 144/558 (25.81)| 120/470 (25.53)          | 24/88 (27.27)        |
| Up to 1 hour later   | 166/558 (29.75)| 149/470 (31.70)          | 17/88 (19.32)        |
| 1-2 hours later      | 102/558 (18.28)| 83/470 (17.66)           | 19/88 (21.59)        |
| Over 2 hours later   | 105/558 (18.82)| 82/470 (17.45)           | 23/88 (26.14)        |

### How has the time it takes your child to get to sleep at bedtime changed during the pandemic?

| Time Change          | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|--------------------------|----------------------|
| Up to 1 hour faster  | 11/557 (1.97)  | 9/469 (1.92)             | 2/88 (2.27)          |
| No change            | 191/557 (34.29)| 164/469 (34.97)          | 27/88 (30.68)        |
| Up 1 hour longer     | 166/557 (29.80)| 148/469 (31.56)          | 18/88 (20.45)        |
| 1-2 hours longer     | 107/557 (19.21)| 91/469 (19.40)           | 16/88 (18.18)        |
| Over 2 hours longer  | 82/557 (14.72) | 57/469 (12.15)           | 25/88 (28.41)        |

### How has your child been woken up during the pandemic (select all that apply)?

| Waking Method    | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|------------------|----------------|--------------------------|----------------------|
| By you           | 189/559 (33.81)| 148/469 (31.42)          | 41/88 (46.59)        |
| By alarm         | 63/559 (11.27) | 56/471 (11.89)           | 7/88 (7.95)          |
| By themselves    | 437/559 (78.18)| 369/471 (78.34)          | 68/88 (77.27)        |
| Other            | 0/559 (0.00)   | 0/471 (0.00)             | 0/88 (0.00)          |

### Overall, how has the amount of sleep your child is getting changed during the pandemic?

| Time Change          | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|--------------------------|----------------------|
| Over 2 hours less    | 53/557 (9.52)  | 36/470 (7.66)            | 17/87 (19.54)        |
| 1-2 hours less       | 98/557 (17.59) | 86/470 (18.30)           | 12/87 (13.79)        |
| Up to 1 hour less    | 87/557 (15.62) | 76/470 (16.17)           | 11/87 (12.64)        |
| No change            | 173/557 (31.06)| 150/470 (31.91)          | 23/87 (26.44)        |
| Up to 1 hour more    | 51/557 (9.16)  | 44/470 (9.36)            | 7/87 (8.05)          |
| 1-2 hours more       | 52/557 (9.34)  | 42/470 (8.94)            | 10/87 (11.49)        |
| Over 2 hours more    | 43/557 (7.72)  | 36/470 (7.66)            | 7/87 (8.05)          |

### How is your child’s sleep routine different at the weekends compared to weekdays?

#### Before the pandemic:

| Time Change          | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|--------------------------|----------------------|
| Over 2 hours earlier | 8/559 (1.43)   | 6/471 (1.27)             | 2/88 (2.27)          |
| 1-2 hours earlier    | 4/559 (0.72)   | 4/471 (0.85)             | 0/88 (0.00)          |
| Up to 1 hour earlier | 9/559 (1.61)   | 7/471 (1.49)             | 2/88 (2.27)          |
| No change            | 216/559 (38.64)| 182/471 (38.64)          | 34/88 (38.64)        |
| Up to 1 hour later   | 172/559 (30.77)| 144/471 (30.57)          | 28/88 (31.82)        |
| 1-2 hours later      | 120/559 (21.47)| 106/471 (22.51)          | 14/88 (15.91)        |
| Over 2 hours later   | 30/559 (5.37)  | 22/471 (4.67)            | 8/88 (9.09)          |

#### Now:

| Time Change          | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|--------------------------|----------------------|
| Over 2 hours earlier | 1/558 (0.18)   | 1/470 (0.21)             | 0/88 (0.00)          |
| 1-2 hours earlier    | 4/558 (0.72)   | 3/470 (0.64)             | 1/88 (1.14)          |
| Up to 1 hour earlier | 6/558 (1.08)   | 6/470 (1.28)             | 0/88 (0.00)          |
| No change            | 260/558 (46.59)| 223/470 (47.45)          | 37/88 (42.05)        |
| Up to 1 hour later   | 93/558 (16.67) | 77/470 (16.38)           | 16/88 (18.18)        |
| 1-2 hours later      | 109/558 (19.53)| 94/470 (20.00)           | 15/88 (17.05)        |
| Over 2 hours later   | 85/558 (15.23) | 66/470 (14.04)           | 19/88 (21.59)        |

### Has your child been going to bed after you? Before the pandemic:

| Time Change          | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|--------------------------|----------------------|
| Yes                  | 31/558 (5.56)  | 23/470 (4.89)            | 8/88 (9.09)          |
| No                   | 527/558 (94.44)| 447/470 (95.11)          | 80/88 (90.91)        |

### Has your child been going to bed after you? Now:

| Time Change          | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|--------------------------|----------------------|
| Yes                  | 147/554 (26.53)| 119/466 (25.54)          | 28/88 (31.82)        |
| Question                                                                 | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------------------------------------------------------------------|----------------|---------------------------|-----------------------|
| **Is your child currently reporting more nightmares or vivid dreams?**   |                |                           |                       |
| Yes                                                                     | 347/466 (74.46) | 23/88 (26.14)             |                       |
| No                                                                      | 282/554 (50.95) | 424/558 (75.99)           | 65/88 (73.86)         |
| **Is your child currently experiencing more night terrors, sleepwalking, bedwetting?** |                |                           |                       |
| Yes                                                                     | 50/469 (10.66)  | 7/88 (7.95)               |                       |
| No                                                                      | 359/470 (76.38) | 81/88 (92.05)             |                       |
| **Is your child currently getting up or waking up more during the night?** |                |                           |                       |
| Yes                                                                     | 128/471 (27.18) | 36/88 (40.91)             |                       |
| No                                                                      | 343/471 (72.82) | 52/88 (59.09)             |                       |
| **Is your child currently getting into your bed more during the night?** |                |                           |                       |
| Yes                                                                     | 75/470 (15.96)  | 11/88 (12.50)             |                       |
| No                                                                      | 395/470 (84.04) | 77/88 (87.50)             |                       |
| **Is your child currently finding it harder to get to sleep?**           |                |                           |                       |
| Yes                                                                     | 257/469 (54.80) | 58/88 (65.91)             |                       |
| No                                                                      | 212/469 (45.20) | 30/88 (34.09)             |                       |
| **Does your child need a parent/carer to be with them at bedtime? Before the pandemic:** |                |                           |                       |
| Yes                                                                     | 99/470 (21.06)  | 26/88 (29.55)             |                       |
| No                                                                      | 371/470 (78.94) | 62/88 (70.45)             |                       |
| **Does your child need a parent/carer to be with them at bedtime? Now:** |                |                           |                       |
| Yes                                                                     | 132/468 (28.21) | 32/86 (37.21)             |                       |
| No                                                                      | 336/468 (71.79) | 54/86 (62.79)             |                       |
| **Does your child use electronic devices in the hour before bedtime? Before the pandemic:** |                |                           |                       |
| Yes                                                                     | 232/471 (49.26) | 43/88 (48.86)             |                       |
| No                                                                      | 239/471 (50.74) | 45/88 (51.14)             |                       |
| **Does your child use electronic devices in the hour before bedtime? Now:** |                |                           |                       |
| Yes                                                                     | 309/469 (65.88) | 53/88 (60.23)             |                       |
| No                                                                      | 160/469 (34.12) | 35/88 (39.77)             |                       |

**About your child’s activities around bedtime during the pandemic compared with before the pandemic**

**During the day, which electronic devices has your child been using for recreation and education during the pandemic (select all that apply)? Recreation:**

- TV: 373/471 (79.19) vs. 289/471 (61.36) vs. 182/471 (38.64)
- Tablet: 264/559 (63.86) vs. 220/471 (53.30) vs. 109/471 (23.94)
- Phone: 270/471 (57.32) vs. 270/471 (57.32) vs. 270/471 (57.32)
- Gaming machines: 164/471 (34.82) vs. 164/471 (34.82) vs. 164/471 (34.82)
- Computer: 182/471 (38.64) vs. 182/471 (38.64) vs. 182/471 (38.64)

**During the day, which electronic devices has your child been using for recreation and education during the pandemic (select all that apply)? Education:**

- TV: 439/559 (78.53) vs. 373/471 (79.19) vs. 66/88 (75.00)
- Tablet: 335/559 (59.93) vs. 289/471 (61.36) vs. 46/88 (52.27)
- Phone: 326/559 (58.32) vs. 270/471 (57.32) vs. 56/88 (63.64)
- Gaming machines: 206/559 (36.85) vs. 164/471 (34.82) vs. 42/88 (47.73)
- Computer: 217/559 (38.82) vs. 182/471 (38.64) vs. 35/88 (39.77)
### 37a How has your child’s daytime use of electronic devices changed during the pandemic? Recreation:

|                      | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|---------------------------|-----------------------|
| Over 2 hours less    | 3/559 (0.54)   | 2/471 (0.42)              | 1/88 (1.14)           |
| 1-2 hours less       | 4/559 (0.72)   | 2/471 (0.42)              | 2/88 (2.27)           |
| Up to 1 hour less    | 6/559 (1.07)   | 6/471 (1.27)              | 0/88 (0.00)           |
| No change            | 72/559 (12.88) | 56/471 (11.89)            | 16/88 (18.18)         |
| Up to 1 hour more    | 146/559 (26.12)| 128/471 (27.18)           | 18/88 (20.45)         |
| Over 2 hours more    | 247/559 (44.19)| 208/471 (43.74)           | 41/88 (46.59)         |

### 37b How has your child’s daytime use of electronic devices changed during the pandemic? Education:

|                      | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|---------------------------|-----------------------|
| Over 2 hours less    | 33/552 (5.98)  | 27/467 (5.78)             | 6/85 (7.06)           |
| 1-2 hours less       | 14/552 (2.54)  | 8/467 (1.71)              | 6/85 (7.06)           |
| Up to 1 hour less    | 6/552 (1.09)   | 5/467 (1.07)              | 1/85 (1.18)           |
| No change            | 64/552 (11.59) | 45/467 (9.64)             | 19/85 (22.35)         |
| Up to 1 hour more    | 73/552 (13.22) | 65/467 (13.92)            | 8/85 (9.41)           |
| 1-2 hours more       | 127/552 (23.01)| 114/467 (24.41)           | 13/85 (15.29)         |
| Over 2 hours more    | 235/552 (42.57)| 203/467 (43.47)           | 32/85 (37.65)         |

### 38 How has the amount of exercise your child usually does per week changed during the pandemic?

|                      | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|---------------------------|-----------------------|
| Over 2 hours less    | 198/558 (35.48)| 159/470 (33.83)           | 39/88 (44.32)         |
| 1-2 hours less       | 83/558 (14.87) | 71/470 (15.11)            | 12/88 (13.64)         |
| Up to 1 hour less    | 56/558 (10.04) | 51/470 (10.85)            | 5/88 (5.68)           |
| No change            | 96/558 (17.20) | 83/470 (17.66)            | 13/88 (14.77)         |
| Up to 1 hour more    | 30/558 (5.38)  | 23/470 (4.89)             | 7/88 (7.95)           |
| 1-2 hours more       | 54/558 (9.68)  | 48/470 (10.21)            | 6/88 (6.82)           |
| Over 2 hours more    | 41/558 (7.35)  | 35/470 (7.45)             | 6/88 (6.82)           |

### 39 Has your child’s weight changed during the pandemic?

|                      | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|---------------------------|-----------------------|
| No change            | 320/559 (57.25)| 277/471 (58.81)           | 43/88 (48.86)         |
| Gained weight        | 106/559 (18.96)| 83/471 (17.62)            | 23/88 (26.14)         |
| Lost weight          | 39/559 (6.98)  | 30/471 (6.37)             | 9/88 (10.23)          |
| Don’t know           | 94/559 (16.82) | 81/471 (17.20)            | 13/88 (14.77)         |

### 40 Have your child’s mealtimes and other daytime routines changed during the pandemic?

|                      | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|---------------------------|-----------------------|
| Yes                  | 281/556 (50.54)| 228/469 (48.61)           | 53/87 (60.92)         |
| No                   | 275/556 (49.46)| 241/469 (51.39)           | 34/87 (39.08)         |

About the impact of your child’s reduced sleep (if applicable)

### 41 Has your child’s reduced sleep had an impact on your wellbeing?

|                      | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|---------------------------|-----------------------|
| Yes                  | 165/361 (45.71)| 121/296 (40.88)           | 44/65 (67.69)         |
| No                   | 196/361 (54.29)| 175/296 (59.12)           | 21/65 (32.31)         |

### 42 Have you been more depressed, anxious, stressed, sad, tearful (due to your child’s sleep problem)?

|                      | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|----------------------|----------------|---------------------------|-----------------------|
| Not at all           | 144/343 (41.98)| 128/281 (45.55)           | 16/62 (25.81)         |
| A little             | 113/343 (32.94)| 95/281 (33.81)            | 18/62 (29.03)         |
43 Have you found it more difficult to cope (due to your child’s sleep problem)?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Not at all  | 165/337 (48.96) | 147/273 (53.85)            | 18/64 (28.12)        |
| A little    | 108/337 (32.05) | 88/273 (32.23)             | 20/64 (31.25)        |
| Moderately  | 36/337 (10.68)  | 19/273 (6.96)              | 17/64 (26.56)        |
| A lot       | 28/337 (8.31)   | 19/273 (6.96)              | 9/64 (14.06)         |

44 Have you been physically unwell (due to your child’s sleep problem)?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Not at all  | 264/328 (80.49) | 231/271 (85.24)            | 33/57 (57.89)        |
| A little    | 47/328 (14.33)  | 29/271 (10.70)             | 18/57 (31.58)        |
| Moderately  | 13/328 (3.96)   | 7/271 (2.54)               | 6/57 (10.58)         |
| A lot       | 4/328 (1.22)    | 3/271 (1.11)               | 1/57 (1.75)          |

45 Has your child’s reduced sleep had an impact on their siblings’ wellbeing?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Yes         | 170/241 (70.54) | 145/195 (74.36)            | 25/46 (54.35)        |
| No          | 71/241 (29.46)  | 50/195 (25.64)             | 21/46 (45.65)        |

46 Have any siblings been more depressed, anxious, stressed, sad, or tearful (due to your child’s sleep problem)?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Not at all  | 171/248 (68.95) | 150/205 (73.17)            | 21/43 (48.84)        |
| A little    | 53/248 (21.37)  | 40/205 (19.51)             | 13/43 (30.23)        |
| Moderately  | 13/248 (5.24)   | 7/205 (3.41)               | 6/43 (13.95)         |
| A lot       | 11/248 (4.44)   | 8/205 (3.90)               | 3/43 (6.98)          |

47 Has your child’s reduced sleep had an impact on their own wellbeing?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Yes         | 187/334 (55.99) | 140/271 (51.66)            | 47/63 (74.60)        |
| No          | 147/334 (44.01) | 131/271 (48.34)            | 16/63 (25.40)        |

48 Has your child become more hyperactive during the pandemic?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Not at all  | 334/517 (64.60) | 289/435 (66.44)            | 45/82 (54.88)        |
| A little    | 122/517 (23.60) | 99/435 (22.76)             | 23/82 (28.05)        |
| Moderately  | 38/517 (7.35)   | 30/435 (6.90)              | 8/82 (9.76)          |
| A lot       | 23/517 (4.45)   | 17/435 (3.91)              | 6/82 (7.32)          |

49 Has your child become more demotivated during the pandemic?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Not at all  | 117/517 (22.63) | 105/434 (24.19)            | 12/83 (14.46)        |
| A little    | 212/517 (41.01) | 192/434 (44.24)            | 20/83 (24.10)        |
| Moderately  | 82/517 (15.86)  | 65/434 (14.98)             | 17/83 (20.48)        |
| A lot       | 106/517 (20.50) | 72/434 (16.59)             | 34/83 (40.96)        |

50 Has your child become more depressed, sad, or tearful during the pandemic?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Not at all  | 238/517 (46.03) | 209/434 (48.16)            | 29/83 (34.94)        |
| A little    | 165/517 (31.91) | 141/434 (32.49)            | 24/83 (28.92)        |
| Moderately  | 66/517 (12.77)  | 48/434 (11.06)             | 18/83 (21.69)        |
| A lot       | 48/517 (9.28)   | 36/434 (8.29)              | 12/83 (14.46)        |

51 Has your child been more anxious or stressed during the pandemic?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Not at all  | 208/521 (39.92) | 188/437 (43.02)            | 20/84 (23.81)        |
| A little    | 197/521 (37.81) | 168/437 (38.44)            | 29/84 (34.52)        |
| Moderately  | 60/521 (11.52)  | 45/437 (10.30)             | 15/84 (17.86)        |
| A lot       | 56/521 (10.75)  | 36/437 (8.24)              | 20/84 (23.81)        |

Question Total (n = 559) CYP without SEN (n = 471) CYP with SEN (n = 88)

52 Has increased anxiety made your child’s sleep worse?

|             | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-------------|-----------------|----------------------------|----------------------|
| Not at all  | 189/393 (48.09) | 167/324 (51.54)            | 22/69 (31.88)        |
| A little    | 126/393 (32.06) | 109/324 (33.64)            | 17/69 (24.64)        |
| Moderately  | 40/393 (10.18)  | 25/324 (7.72)              | 15/69 (21.74)        |
| A lot       | 38/393 (9.67)   | 23/324 (7.10)              | 15/69 (21.74)        |
If your child already suffered with mental health conditions, have these been worse during the pandemic?

| Condition                          | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-----------------------------------|----------------|--------------------------|-----------------------|
| Not at all                         | 97/165 (58.79) | 80/115 (69.57)           | 17/50 (34.00)         |
| A little                           | 28/165 (16.97) | 18/115 (15.65)           | 10/50 (20.00)         |
| Moderately                         | 19/165 (11.52) | 8/115 (6.96)             | 11/50 (22.00)         |
| A lot                              | 21/165 (12.73) | 9/115 (7.83)             | 12/50 (24.00)         |

About how much home-schooling has had an impact on your child’s sleep pattern

| Impact                        | Total (n = 508) | CYP without SEN (n = 427) | CYP with SEN (n = 81) |
|-------------------------------|----------------|---------------------------|-----------------------|
| Not at all                    | 77/508 (15.16) | 60/427 (14.05)            | 17/81 (20.99)         |
| A little                      | 166/508 (32.68)| 147/427 (34.43)           | 19/81 (23.46)         |
| Moderately                    | 90/508 (17.72) | 76/427 (17.80)            | 14/81 (17.28)         |
| A lot                         | 175/508 (34.45)| 144/427 (33.72)           | 31/81 (38.27)         |

How has your child's happiness changed while being home schooled?

| Change                          | Total (n = 519) | CYP without SEN (n = 438) | CYP with SEN (n = 77) |
|---------------------------------|----------------|---------------------------|-----------------------|
| Much more unhappy               | 31/519 (5.97)  | 24/438 (5.48)             | 7/81 (8.64)           |
| Moderately more unhappy         | 58/519 (11.18) | 46/438 (10.50)            | 12/81 (14.81)         |
| A little more unhappy           | 167/519 (32.18)| 149/438 (34.02)           | 18/81 (22.22)         |
| No change                       | 143/519 (27.55)| 127/438 (29.00)           | 16/81 (19.75)         |
| A little less happy             | 60/519 (11.56) | 53/438 (12.10)            | 7/81 (8.64)           |
| Moderately less happy           | 37/519 (7.13)  | 24/438 (5.48)             | 13/81 (16.05)         |
| Much more happy                 | 23/519 (4.43)  | 15/438 (3.42)             | 8/81 (9.88)           |

Has home schooling affected your child's anxiety/stress levels?

| Level                           | Total (n = 507) | CYP without SEN (n = 430) | CYP with SEN (n = 77) |
|---------------------------------|----------------|---------------------------|-----------------------|
| A lot more anxious/stressed    | 35/507 (6.90)  | 25/430 (5.81)             | 10/77 (12.99)         |
| Moderately more anxious/stressed| 53/507 (10.45)| 46/430 (10.50)            | 11/77 (14.29)         |
| A little more anxious/stressed | 179/507 (35.31)| 155/430 (36.05)           | 24/77 (31.17)         |
| No change                       | 172/507 (33.93)| 154/430 (35.81)           | 18/77 (23.38)         |
| A little less anxious/stressed  | 33/507 (6.51)  | 29/430 (6.74)             | 4/77 (5.19)           |
| Moderately less anxious/stressed| 19/507 (3.75) | 12/430 (2.79)             | 7/77 (9.09)           |
| A lot less anxious/stressed     | 16/507 (3.16)  | 13/430 (3.02)             | 3/77 (3.09)           |

Will you consider home schooling after the pandemic?

| Decision                     | Total (n = 528) | CYP without SEN (n = 450) | CYP with SEN (n = 78) |
|------------------------------|----------------|---------------------------|-----------------------|
| Yes                          | 44/528 (8.33)  | 34/450 (7.56)             | 10/78 (12.82)         |
| No                           | 484/528 (91.67)| 416/450 (92.44)           | 68/78 (87.18)         |

Has your child missed their friends during the pandemic?

| Frequency                       | Total (n = 553) | CYP without SEN (n = 471) | CYP with SEN (n = 82) |
|---------------------------------|----------------|---------------------------|-----------------------|
| Not at all                      | 20/553 (3.59)  | 13/471 (2.76)             | 7/82 (8.64)           |
| A little                        | 131/553 (23.52)| 99/471 (21.02)            | 32/82 (37.21)         |
| Moderately                      | 119/553 (21.36)| 104/471 (22.08)           | 15/82 (17.44)         |

Has your child felt lonely during the pandemic?

| Level                           | Total (n = 555) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|---------------------------------|----------------|---------------------------|-----------------------|
| Not at all                      | 157/555 (28.39)| 132/470 (28.09)           | 25/83 (30.12)         |
| A little                        | 210/555 (37.97)| 182/470 (38.72)           | 28/83 (33.73)         |
| Moderately                      | 88/553 (15.91) | 77/470 (16.38)            | 11/83 (13.25)         |
| A lot                           | 98/553 (17.72) | 79/470 (16.81)            | 19/83 (22.89)         |
### 61 How has your child been socialising with their friends during the pandemic (select all that apply)?

| Activity                          | Total (n = 559) | CYP without SEN (n = 471) | CYP with SEN (n = 88) |
|-----------------------------------|-----------------|---------------------------|-----------------------|
| Hasn’t been socialising with friends | 75/559 (13.42) | 54/471 (11.46)           | 21/88 (23.86)        |
| Phone messaging                   | 288/559 (51.52) | 252/471 (53.50)           | 36/88 (40.91)        |
| Social media                      | 188/559 (33.63) | 162/471 (34.39)           | 26/88 (29.55)        |
| Gaming                            | 178/559 (31.84) | 144/471 (30.57)           | 34/88 (38.64)        |
| Phone calls                        | 156/559 (27.91) | 141/471 (29.94)           | 15/88 (17.05)        |
| Video calls                        | 311/559 (55.64) | 279/471 (59.24)           | 32/88 (36.36)        |
| Incidental meetings during daily exercise | 190/559 (33.99) | 173/471 (36.73)           | 17/88 (19.32)        |
| Other                             | 0/559 (0.00)    | 0/471 (0.00)              | 0/88 (0.00)          |

### 62a Has your child been socialising with their friends online after midnight? Before the pandemic:

| Response     | Total (n = 557) | CYP without SEN (n = 471) | CYP with SEN (n = 86) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 17/557 (3.05)   | 12/471 (2.55)             | 5/86 (5.81)           |
| No           | 533/557 (95.69) | 452/471 (95.97)           | 81/86 (94.19)         |
| Don’t know   | 7/557 (1.26)    | 7/471 (1.49)              | 0/86 (0.00)           |

### 62b Has your child been socialising with their friends online after midnight? Now:

| Response     | Total (n = 554) | CYP without SEN (n = 468) | CYP with SEN (n = 86) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 75/554 (13.54)  | 58/468 (12.39)            | 17/86 (19.77)         |
| No           | 468/554 (84.48) | 399/468 (85.26)           | 69/86 (80.23)         |
| Don’t know   | 11/554 (1.99)   | 11/468 (2.35)             | 0/86 (0.00)           |

### 63a Has your child been doing school work in their bedroom? Before the pandemic:

| Response     | Total (n = 555) | CYP without SEN (n = 469) | CYP with SEN (n = 86) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 161/555 (29.01) | 141/469 (30.06)           | 20/86 (23.26)         |
| No           | 394/555 (70.99) | 328/469 (69.94)           | 66/86 (76.74)         |

### 63b Has your child been doing school work in their bedroom? Now:

| Response     | Total (n = 552) | CYP without SEN (n = 467) | CYP with SEN (n = 85) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 178/552 (32.25) | 151/467 (32.33)           | 27/85 (31.76)         |
| No           | 374/552 (67.75) | 316/467 (67.67)           | 58/86 (68.24)         |

### About your child’s sleep and the transition back to school

### 64 Does your child want to go back to school?

| Response     | Total (n = 531) | CYP without SEN (n = 452) | CYP with SEN (n = 79) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 357/531 (67.23) | 315/452 (69.97)           | 42/79 (53.16)         |
| No           | 86/531 (16.20)  | 62/452 (13.72)            | 24/79 (30.38)         |
| Doesn’t mind | 88/531 (16.57)  | 75/452 (16.59)            | 13/79 (16.46)         |

### 65 Is your child anxious about going back to school?

| Response     | Total (n = 516) | CYP without SEN (n = 441) | CYP with SEN (n = 75) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 192/516 (37.21) | 147/441 (33.33)           | 45/75 (60.00)         |
| No           | 324/516 (62.79) | 294/441 (66.67)           | 30/75 (40.00)         |

### 66 Is your child afraid of going back to school due to COVID-19?

| Response     | Total (n = 516) | CYP without SEN (n = 441) | CYP with SEN (n = 75) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 114/516 (22.09) | 84/441 (19.05)            | 30/75 (40.00)         |
| No           | 402/516 (77.91) | 357/441 (80.95)           | 45/75 (60.00)         |

### 67 Is your child anxious about what it will be like when they go back to school?

| Response     | Total (n = 507) | CYP without SEN (n = 436) | CYP with SEN (n = 71) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 280/507 (55.23) | 182/436 (41.74)           | 45/71 (63.38)         |
| No           | 227/507 (44.77) | 254/436 (58.26)           | 26/71 (36.62)         |

### 68 Is anxiety about going back to school currently having an impact on your child’s sleep?

| Response     | Total (n = 547) | CYP without SEN (n = 407) | CYP with SEN (n = 89) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 59/476 (12.39)  | 39/407 (9.88)             | 20/89 (22.48)         |
| No           | 417/476 (87.61) | 368/407 (90.12)           | 49/89 (55.61)         |

### 69 Is your child anxious that it will be difficult to get their sleep pattern back to normal when they go back to school?

| Response     | Total (n = 548) | CYP without SEN (n = 418) | CYP with SEN (n = 88) |
|--------------|-----------------|---------------------------|-----------------------|
| Yes          | 81/481 (16.84)  | 64/418 (15.31)            | 17/88 (20.00)         |
| Question                                                                 | Yes         | No          | Total          |
|-------------------------------------------------------------------------|-------------|-------------|----------------|
| 70 Are you anxious that it will be difficult to get your child’s sleep  | 217/509 (42.63%) | 292/509 (57.37%) | 400/481 (83.16%) |
| pattern back to normal when they go back to school?                     | 171/434 (39.40%) | 263/434 (60.60%) | 354/418 (84.69%) |
|                                                                         | 46/75 (61.33%)  | 29/75 (38.67%)   | 46/63 (73.02%)   |
| About your child and hospital/medications                               |             |             |                |
| 71 Who have you contacted about your child’s sleep problems during      | No one      | GP          | Other          |
| the pandemic (select all that apply)?                                   | 275/559 (49.19%) | 9/559 (1.61%) | 0/559 (0.00%)  |
|                                                                         | 231/471 (49.04%) | 5/471 (1.06%)  | 0/471 (0.00%)  |
|                                                                         | 44/88 (50.00%)   | 4/88 (4.55%)   | 0/88 (0.00%)   |
| 72 Have you had a hospital appointment for your child’s sleep problems | Yes         | No          |                |
| during the pandemic?                                                    | 1/550 (0.18%)   | 549/550 (99.82%) |                |
|                                                                         | 1/466 (0.21%)    | 465/466 (99.79%) |                |
|                                                                         | 0/84 (0.00%)     | 84/84 (100.00%) |                |
| 73 Has your child been prescribed any additional medication for sleep   | Yes         | No          |                |
| problems during the pandemic?                                           | 9/549 (1.64%)    | 540/549 (98.36%) |                |
|                                                                         | 1/465 (0.22%)    | 464/465 (99.78%) |                |
|                                                                         | 8/84 (9.52%)     | 76/84 (90.48%)  |                |
| 74 If support from a sleep practitioner was available, would you be     | Yes         | No          |                |
| interested?                                                             | 136/544 (25.00%) | 408/544 (75.00%) |                |
|                                                                         | 98/460 (21.30%)  | 362/460 (78.70%) |                |
|                                                                         | 38/84 (45.24%)   | 46/84 (54.76%)  |                |
| 75 If support from a sleep app was available, would you be interested?  | Yes         | No          |                |
|                                                                         | 228/543 (41.99%) | 315/543 (58.01%) |                |
|                                                                         | 178/459 (38.78%) | 281/459 (61.22%) |                |
|                                                                         | 50/84 (59.52%)   | 34/84 (40.48%)  |                |

Notes. SEN = special educational needs. n (%) unless otherwise specified.