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SLP provision during COVID-19.

Speech-Language Pathology provision during the COVID-19 pandemic for children born with cleft palate in the United Kingdom - Parent/Caregiver perspectives and experiences

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Abstract

Purpose: To examine parent/caregiver perspectives and experiences of speech-language pathology (SLP) provision during the COVID-19 pandemic for children born with cleft palate.

Method: An online questionnaire to parents of children born with cleft palate asked about delays and changes to SLP provision during the first UK national lockdown. Parents were also asked their views on the effectiveness of online SLP provision. Analysis considered variation in SLP provision by region. Chi-square and Mann-Whitney U tests examined associations between SLP provision and socio-economic status and child age. Free text responses were analyzed using qualitative content analysis.

Results: Three hundred and fifty-six (39.3%) children were receiving SLP intervention before the first national lockdown. A further 49 (9.0%) were due to start SLP intervention during the lockdown. SLP provision varied both nationally and within smaller geographical regions. Overall, 146 (42.6%) children continued to receive SLP and 197 (57.4%) had intervention delayed. There was no association between delayed SLP and socio-economic status. Older children were more likely to experience delayed SLP provision ($p=0.004$). Qualitative analysis revealed concerns about access to SLP, challenges with adequate devices to access online provision, technological problems and child engagement in online provision. Parents reported online provision as being 'better than nothing'.

Conclusions: Parents/caregivers reported delays to SLP provision during the first lockdown but this varied geographically and was more prevalent for older children. Concerns about access to SLP provision were raised, including challenges regarding online provision. Follow-on work will consider the impact of the delays experienced on longer-term outcomes.

Key words: Cleft Collective, cleft palate, speech-language pathology, COVID-19

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Introduction

Speech-Language Pathology (SLP) is an essential component of the multidisciplinary approach to the care of children born with a cleft palate with or without a cleft lip (CP+/-L). CP+/-L is one of the most common congenital anomalies, affecting approximately 800 children born in the UK each year. Primary palate repair usually takes place in the first year of life (Dixon et al., 2011; Mossey et al., 2009) but further surgery and/or SLP for speech is often needed with approximately 40-60% of children needing ongoing intervention for their speech at age 5 years (Britton et al., 2014; Hardin-Jones and Jones, 2005). A history of SLP intervention has been shown to reduce the type of speech errors commonly seen in children born with a cleft palate, often referred to as Cleft Speech Characteristics (CSCs) (Sell et al., 2017), although there is little evidence to support specific intervention regimes (Bessell et al., 2013; Sell et al., 2017). The COVID-19 pandemic has resulted in delays and changes to the provision of SLP and this may have an impact on children's speech outcomes.

Provision of SLP for children with CP+/-L in the UK prior to the pandemic

Cleft care in the UK is centralized within the National Health Service (NHS), with a national network of specialist regional cleft centers covering designated geographical areas (Sandy et al., 1998; Fitzsimons et al., 2012). SLPs specializing in CP+/-L at the regional centers coordinate SLP care and make recommendations and provide support to local community SLPs, who provide intervention closer to home, where intervention cannot be carried out at the center (NHS England, 2013). The aim is to support children to achieve speech without velopharyngeal dysfunction or CSCs as early in life as possible.

National audit of speech outcomes prior to the pandemic demonstrated that 60% of children born with CP+/-L in the UK achieved speech within the normal range at age 5 years (CRANE, 2020). This age is

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recognized as a crucial time-point when children enter full-time education in the UK (Britton et al., 2014).

Provision of cleft services including SLP during the pandemic

The World Health Organization declared COVID-19 to be a global pandemic on March 11, 2020. Shortly afterwards, the UK Cleft Development Group (CDG) announced the delay of all cleft operations and face-to-face interventions across the multidisciplinary team involved in cleft care until the crisis had resolved (Cleft Development Group, 2020). This was particularly difficult for delivery of interventions that require close working across age groups, particularly where it is essential that child and clinician can clearly see and hear each other. These restrictions therefore presented a significant challenge for SLP (Britton, 2021). It is worth noting that delays in the UK cleft treatment pathway are not unique to the pandemic and were present beforehand, most commonly when children had co-morbidities (Butterworth et al., 2021). The magnitude of effect that the pandemic has had on UK cleft care delays is not yet fully known, however delays to the multidisciplinary pathway are likely to be more numerous and widespread than prior to the pandemic.

It is known that SLPs worked hard, both in the UK and globally, to adapt to the crisis and continue the provision of care to their patients (Camden and Silva, 2020; RCSLT, 2021). Adaptations included increased use of telehealth, training additional support staff and changes to working styles with the use of telehealth video platforms extensively used as an alternative method of service delivery, in many cases for the first time (Law et al., 2021). However, anecdotal comments suggested provision and effectiveness varied, presenting an additional risk to equity of access to SLP, already present in the UK (Children's Commissioner, 2019; Clinical Reference Group for Cleft Lip and Palate, 2016).

Parent/caregiver perspectives of SLP provision during the pandemic

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The importance of understanding parent/caregiver perspectives of SLP provision was recognized by the Royal College of Speech and Language Therapists (RCSLT) who initiated a survey of service users. They investigated the impact of the pandemic through a survey of 425 family members, un-paid caregivers (both accounting for 83% of respondents), paid caregivers, education and healthcare professionals of under 18-year-olds with a variety of speech language and communication impairments, plus a small number of children and young people themselves. All respondents reported a change to the provision of SLP. The vast majority (81%) reported receiving less intervention than before the pandemic, leading to a negative impact on education, friendships and mental health (RCSLT, 2021). The impact was noted to be worse for children living in deprived areas.

Understanding parental perspectives in relation to SLP service provision is vital because of the importance of parental engagement in SLP intervention (Law et al., 2021). This is particularly important in relation to the widespread use of telehealth as a method of SLP provision delivery during the pandemic (Filbay et al., 2021; Law et al., 2021; RCSLT, 2021). However, while understanding of parent perspectives generally is helpful, we cannot assume that parents of children born with CP+/-L will share the experiences and perspectives of the larger population of all children with speech, language and communication needs.

Children born with CP+/-L have their speech development monitored routinely from birth to adulthood in the UK, with the aim of facilitating timely intervention for any difficulties identified. The pandemic is likely to have disrupted this routine monitoring creating a different experience of cleft care for parents. Assessment and monitoring of velopharyngeal function is a core aspect of this SLP provision for children born with CP+/-L, requiring detailed perceptual analysis with features such as nasal air emission being potentially more challenging to hear over online video platforms with the potential to impact on surgical decision making (Britton, 2021). Similar challenges present themselves in relation to the analysis of and

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intervention for complex speech disorders in this population as well as delivery of intervention methods involving multi-sensory input and coaching parents to hear and provide intervention support for unusual speech production patterns (Britton, 2021). Parent/caregiver perspectives of SLP intervention via online video platforms may therefore not reflect the perspectives of parents/caregivers of children with different speech, language and communication needs. It is therefore equally vital that we understand the specific perspectives and experiences of the parents of children born with CP+/-L as part of rebuilding SLP services and identifying the specific needs of this population following the pandemic. The aim of this study was therefore to explore parent/caregiver perspectives and experiences of SLP provision during the pandemic for children born with CP+/-L in the UK.

Method

Design and Setting

The investigation was carried out within The Cleft Collective Cohort Study, a large national cohort of children born with cleft lip and/or palate and their families (Stock et al., 2016; Wren et al., 2018). The Cleft Collective was set up as a resource to investigate causes of cleft, the best treatments and the impact of cleft. The resource comprises biological samples, speech audio recordings, medical and educational records and parent and child completed questionnaires. Data are available for clinical and academic communities to access and use to address a range of cleft related research questions.

A questionnaire was designed to determine the impact of the COVID-19 pandemic on participants in the Cleft Collective. This included four questions relating to SLP provision. The questionnaire was distributed online to 4340 parent/caregiver participants in The Cleft Collective Cohort Study for whom email addresses were available. A total of 1527 responses were received, with participant representation from all the geographical regions in the UK covered by specialist cleft center sites. The questionnaire was dynamic and only relevant questions were presented to participants.

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Respondents were also invited to provide additional comments via free text. Not all respondents answered all questions.

The four questions asked relating to SLP provision were:

- 1) "Was your child receiving speech and language therapy intervention before lockdown?"
- 2) "If no to question 1, was your child due to start speech and language therapy intervention after the 23rd of March 2020 (when the first national lockdown started in the UK)?"
- 3) "Is your child still having speech and language therapy intervention?"
- 4) "If (speech and language therapy intervention is) delivered online, how effective do you think this method is?"

Ethics

Ethical approval for the Cleft Collective cohort study was obtained from the Southwest Central Bristol Ethics (REC approval 13/SW/0064) in 2013. A substantial amendment was submitted in 2020 to obtain approvals for the COVID-19 questionnaire and analysis of the data.

Statistical Analysis

The quantitative data were examined using Stata version 16.1 to describe the data and examine geographical variation in SLP provision during the period. It was also used to examine relationships between children's SLP intervention status (whether they received ongoing SLP intervention or their SLP intervention was delayed) and socio-economic status (SES) (ordinal chi square test) and the child's age (Mann Whitney U).

For some children, more than one parent or caregiver responded to the questionnaire. Therefore, for the first three questions, analyses were conducted using responses from one parent/caregiver. Where two parents/caregivers had responded, the biological mother's response was

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used if available. This was because more biological mothers (average 69.8% across the four questions considered for this study) than fathers or mother's partners responded to the questionnaire. Where a mother did not respond, the father, mother's partner or other caregiver's response was included.

To examine variation in SLP provision by geographical area and associations between children's SLP intervention status and SES and age, a binary variable was derived from the responses to the third question, "Is your child still having speech and language therapy intervention?". Responses indicating that the child was receiving ongoing SLP intervention, either in person or online, were combined for comparison with those who reported their child's SLP intervention had been delayed due to the pandemic.

SES was derived using the Index of Multiple Deprivation (IMD). The IMD is a 10-point scale, applied to small geographical areas of England, from 1 (most deprived area) to 10 (least deprived area). Information from seven domains (income deprivation; employment deprivation, education, skills and training deprivation, health deprivation and disability, crime, barriers to housing and services; living environment deprivation) is combined to calculate an overall deprivation index level for an area (Ministry of Housing, Communities and Local Govt., 2019). For the purposes of this study, area IMD ranks for participants were grouped into tertiles; 1) IMD ranks 1-3, 2) IMD ranks 4-7 and 3) IMD ranks 8-10. This served as the SES variable.

Qualitative analysis

As part of this online survey, some multiple-choice questions were followed by free text questions asking for respondents to add any additional information such as; 'Is there anything else you would like to tell us about how your child's treatment has been affected by lockdown?' or 'please provide any additional feedback as to how well you feel speech and language therapy went' was included after the question introduced in the previous paragraph.

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Responses from 371 parents were received and imported into NVivo 12. Conventional qualitative content analysis (Hsieh & Shannon, 2005; Mayring, 2004) was undertaken by authors SH and LS. SH is a health psychologist, and researcher with a PhD, with significant qualitative experience. LS is a researcher and a clinical specialist Speech-Language Pathologist in a cleft service. Through the process of making the data anonymous at submission, SH and LS were not able to identify specific Individuals. Although biological sex was made anonymous in the qualitative data, for ease of reading, a random biological sex has been assigned to quotes.

Participants

Figure 1 presents sample sizes for each question examined for this study.

[insert figure 1 here]

Table 1 presents a summary of sample sizes and demographics of the children represented for each question examined for this study.

[insert table 1 here]

Results

Of the 906 children represented by the responses to the question, 'Was your child receiving SLP intervention before the first COVID-19 lockdown?', 356 (39.3%) were reported to be receiving SLP intervention prior to the first COVID-19 pandemic lockdown. Of those who answered 'no' to question one, 49 (9.0%) children were reported to be due to start SLP intervention after the 23rd March 2020 (see table 2).

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[insert table 2 here]

Table 3 shows the distribution of responses to question 3, “Is your child still having speech-language pathology intervention?” There was considerable variability in the impact on SLP services for children born with CP+/-L with almost half (48.9%) not receiving any intervention at all due to delays caused by the pandemic and a further third (33.5%) receiving intervention via online video platform.

[insert table 3 here]

Geographical variation in SLP provision

This variability was not only reflected nationally in the parent reported data, it was also present when examining the data corresponding to the different geographical regions covered by individual regional specialist cleft center sites. Table 4 presents data for 17 geographical regions in relation to the number of parents/caregivers who reported that SLP intervention was ongoing versus SLP intervention being delayed due to COVID-19. Data for some regions have been aggregated where participant numbers were small, to avoid disclosure. The number of children who received SLP intervention (in person or via online video platform) versus the number whose intervention was delayed due to COVID-19 varied between regions (N=343). The proportion of children whose SLP intervention had been delayed due to the pandemic ranged between 40.0% and 73.8%. Overall, 42.6% of children were reported to be receiving SLP intervention at the time the questionnaire was completed with 57.4% reported as having their SLP intervention delayed due to the pandemic (see table 4).

[insert table 4 (landscape)]

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1 ***Association between SLP provision status and SES, age and timing of questionnaire completion***

2 Results from the ordinal chi square test showed no evidence of an association between socioeconomic
3 status and whether SLP intervention was ongoing or delayed ($p=0.741$), see table 5.

4 [insert table 5]

5 Child's age (in months) at the time of completion of the questionnaire was positively skewed (median =
6 48.1, interquartile range (IQR) = 33.8 - 70.2, min= 5.7, max=178.6)). A Mann Whitney U test was
7 conducted to examine relationships between group age and SLP intervention status. There was strong
8 evidence for a difference in age between the group who were receiving ongoing SLP intervention and
9 the group for whom SLP intervention had been delayed due to COVID-19 ($p=0.004$). The group whose
10 SLP intervention had been delayed due to COVID-19 were older, (median=51.4, IQR=35.6 - 76.3) in
11 comparison to the group who received ongoing SLP intervention (median=40.9, IQR=31.8 - 62.1). See
12 table 6.

13 [insert table 6]

14 There will have been variability in the timing of the response to the questionnaire in relation to national
15 and regional pandemic restriction status because the questionnaires were completed anytime between
16 July, soon after the end of the first full national lockdown and October 2020, after a period of reduced
17 and variable restrictions and before further lockdowns were introduced. There was some evidence
18 ($p=0.030$) of an association between parent/caregiver reported SLP provision status and the period
19 when the questionnaire was completed (see table 7).

20 [insert table 7]

21 Due to evidence suggesting an association in reported SLP provision between early and later
22 respondents, sensitivity analyses were performed to identify if timing of questionnaire completion
23 impacted results already presented. Analyses were reperformed as subgroup analyses for responses

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24 received in July 2020 and responses received between August – October 2020. No evidence was found
25 to suggest a difference between SES and SLP provision for either the early or later responder groups
26 ($\text{Chi}^2 = 4.04, p=0.133$; $\text{Chi}^2 = 0.833, p=0.659$ respectively). When exploring child's age by SLP provision
27 for the early responder sub-group (responses received in July 2020) there was evidence to suggest a
28 difference in age between the group who were receiving ongoing SLP intervention and the group for
29 whom SLP intervention had been delayed due to COVID-19 ($p=0.021$). Weaker evidence to suggest a
30 difference in age between those who were receiving SLP intervention and those whom SLP intervention
31 had been delayed due to COVID-19 was seen in the later responders ($p=0.056$). The direction of these
32 differences remained the same with children for whom SLP intervention had been delayed due to
33 COVID-19 being older in both subgroups.

34 ***Parent/caregiver perspectives of SLP provision delivered online***

35 Of the 212 responses, from 168 families, to the question asking for parent/caregiver opinions on
36 the effectiveness of SLP intervention delivered via online video platforms, the majority 140 (66.0%) of
37 respondents reported that SLP delivered in this way was 'somewhat effective' with 56 (26.4%) reporting
38 it as being very effective and 16 (7.6%) finding it 'not at all' effective. It is important to be aware that a
39 proportion of families may not have been able to access alternative SLP intervention delivery via online
40 video platforms. The Cleft Collective COVID-19 questionnaire also included a section on access to
41 education and forty-six (3.0%) of the 1527 respondents ($N=38$; 3.2% of families) reported that they had a
42 lack of a device or internet connection to access remote learning. While these responses were not
43 reported within the SLP section of the questionnaire, it is essential to consider that this may also have
44 impacted some families in relation to access to SLP services.

45 ***Qualitative findings***

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46 Qualitative analysis of the free text responses gave insight into parent/caregiver experiences of
47 this period of time and specific challenges encountered in relation to SLP provision. For example, as
48 indicated by the quantitative results regarding lack of access to appropriate devices or internet
49 connection, in some instances, parents reported that they did not have access to the technologies
50 **'Digital Poverty'** to allow their children to engage with healthcare provision.

51 *"I have been trying to seek help for a laptop from charities for my child to complete*
52 *schoolwork at home and also face to face speech therapy online. No luck as yet. We are*
53 *struggling with money because of COVID-19 ..."* (Pt Ref)

54 In contrast, other parents were concerned about the level of provision and were in the position to **'buy**
55 **in services'**.

56 *"I have concerns over accessing future speech and language therapy through the NHS*
57 *and am considering paying privately to top this up."* (Pt Ref)

58 For those who were able to engage with SLP online, there were still issues. The **'technological**
59 **problems'** for SLP were the quality of video and sound, and the connectivity.

60 *"don't feel the SLP could accurately hear his speech issues over the screen."* (Pt Ref)

61 *"the screen tends to freeze making things difficult."* (Pt ref)

62 Another significant factor raised by parents was the ability of their child to maintain **'engagement'** with
63 SLP delivered online. Sometimes this was attributed to a child's age, but it was also associated with a
64 child not wanting to see themselves on the screen, and just not wanting to participate in the session.

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65 *“My child finds more difficult to concentrate during the online speech therapy sessions. She is*
66 *less interested than before.” (Pt ref)*

67 *My child...has been very anxious because he is extremely conscious of and the way*
68 *they look.” (Pt ref)*

69 *“My child has a somewhat limited attention span due to (their) age so struggles to*
70 *consistently engage with the sessions.” (Pt ref)*

71 *“I'd feel better if we could sit in the room with (my child) as he concentrates better and is*
72 *more likely to say words.” (Pt Ref)*

73 Overall, the code of **‘better than nothing’** was evident across the free text data in relation to SLP
74 provision delivered via online video platforms. This suggests that parents appreciated and valued
75 therapy provision delivered in the lockdown period, but that face to face was still preferred, and looked
76 forward to, by both themselves and their children.

77 *“it is harder to do the speech and language therapy effectively as it is face to face as the*
78 *sound quality isn't the best and at times having to ask if the sounds was how it should be*
79 *however we are very thankful for the continuation of the therapy as it keeps the*
80 *relationship going” (Pt ref)*

81 *“apart from technical issues its definitely better than nothing at all” (Pt Ref)*

82 **Discussion**

83 This study sought to describe and examine parent/caregiver reported perspectives and experiences of
84 SLP intervention provision for children born with CP+/-L during the COVID-19 pandemic. The results
85 highlight considerable variation in SLP provision received by children born with CP+/-L during this

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86 period, adding to the evidence for the extent of disruption to vital services for people with speech
87 language and communication needs (RCSLT, 2021). This variability was evident both between and within
88 geographical areas served by the regional specialist cleft center sites serving the UK. There was some
89 evidence that children's SLP intervention status was associated with the time their parent/caregiver
90 completed the questionnaire. This suggests that variations in the timing and extent of COVID-19 surges
91 and restrictions across the country in the period following the first national lockdown may have
92 contributed to the variation in provision seen. However, it was beyond the scope of this study to
93 examine reasons for the variations seen in the data in detail.

94 Whatever the reasons for the variation, these data show that some children may have been more
95 impacted than others by the disruption to services due to the pandemic, potentially compounding
96 challenges in the system identified before the pandemic (Clinical Reference Group for cleft services,
97 2016; Children's Commissioner, 2019). There was no association between socioeconomic status and SLP
98 intervention status. However, the evidence suggested that older children were more likely to have had
99 SLP intervention delayed. Again, it was beyond the scope of this study to examine reasons for this but
100 further work to understand this and the potential impact is needed.

101 The qualitative data highlighted the stresses some families have been under in order to facilitate access
102 to SLP services for their children. This included difficulties accessing adequate devices and internet
103 connection to engage in online service provision. There was also some evidence of this issue in the
104 quantitative data however, it is also important to note that this questionnaire was only sent to
105 participating families in the Cleft Collective for whom an email address was held. Therefore, it is possible
106 that families with less access to devices and/or internet connection, were less likely to have received the
107 questionnaire in the first place and may therefore be underrepresented in these data.

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108 The provision of SLP delivered via online video platforms was generally welcomed as the best available
109 option but parents highlighted a range of challenges impacting on the success of this method including,
110 sound and picture quality for both speech-language pathologist and parent/child and children's ability to
111 concentrate or feel comfortable for these sessions. This reflects speech-language pathologist concerns
112 about this method of delivery (Britton, 2021). Parents also expressed concern for future SLP service
113 provision more generally.

114 ***Clinical implications***

115 Detailed analysis examining influencing factors for the findings was beyond the scope of this study.
116 However, there are potential implications for clinicians and service providers to consider in light of the
117 findings. The findings of this work should be considered when planning future SLP service provision for
118 this population alongside other factors which may impact on future demand for SLP services for this
119 population such as delays to primary palate repair. It will also be important for the clinical and patient
120 reported outcomes and experiences for people whose treatment has been affected by the pandemic to
121 be monitored closely to ensure appropriate interventions and supports are put in place where needed.

122 The variation in whether or not children received any SLP intervention over extended periods in 2020
123 highlights a need for services to identify both the children most affected by delays and the reasons for
124 their not accessing intervention. This would enable services to plan provision for these children to
125 mitigate any longer-term negative impacts of not receiving any intervention during this period.

126 In addition, parents highlighted a range of challenges in relation to the use of online video platforms as
127 an alternative method of service delivery. As this is likely to become a more widely used method of
128 delivering SLP intervention, there is an urgent need for SLPs, service providers and researchers to work

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129 together to understand how and for whom this method of delivery is accessible and effective for it to be
130 successfully and appropriately integrated into SLP services.

131 **Conclusion**

132 Parents/caregivers of children born with CP+/-L have reported significant disruption to SLP services as a
133 result of COVID-19 in the UK and services will need to respond to this by identifying and meeting the
134 needs of those most impacted to mitigate risk to their longer-term outcomes. While this provides
135 challenges for those providing SLP services, an analysis of the forced radical changes implemented
136 during the pandemic may also help to identify benefits which could be integrated into future service
137 delivery plans post-pandemic.

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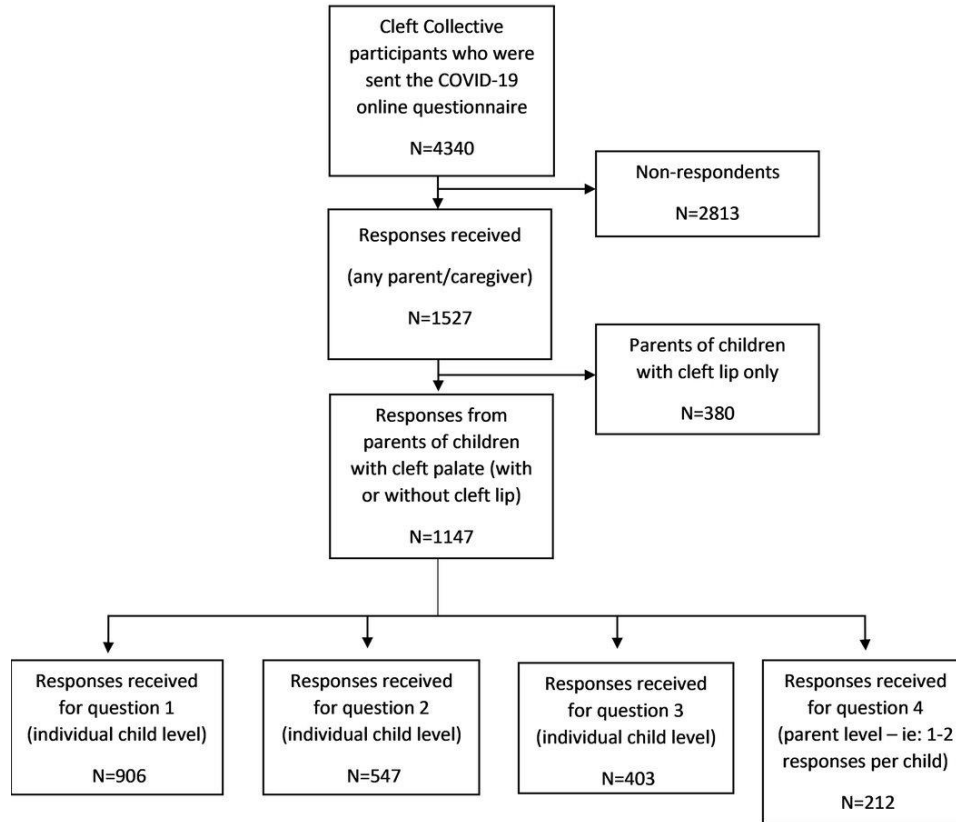
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238 **Figure 1: Sample sizes**



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251 **Table 1: Demographics of children represented by questionnaire respondents for each SLP question**
 252 **with duplicate parent/caregiver responses removed for questions 1-3 and all responses included for**
 253 **question 4**

	Question 1 ^{Q1}	Question 2 ^{Q2}	Question 3 ^{Q3}	Question 4 ^{Q4}
	N (%)	N (%)	N (%)	N (%)
Overall N	906	547	403	212
Biological sex of child	900	544	400	210
Male	534 (59.3)	316 (58.1)	244 (61.0)	129 (61.4)
Female	366 (40.7)	228 (41.9)	156 (39.0)	81 (38.6)
Child's cleft diagnosis	900	542	401	212
Cleft palate only (inc. SMCP*)	420 (46.7)	263 (48.5)	171 (42.6)	75 (35.4)
Unilateral cleft lip and palate	351 (39.0)	209 (38.6)	159 (39.7)	89 (42.0)
Bilateral cleft lip and palate	129 (14.3)	70 (12.9)	71 (17.7)	48 (22.6)

254 Q1 = Was your child receiving SLP intervention before the first COVID-19 lockdown?; Q2 = If no (to
 255 question 1), was your child due to start speech and language therapy intervention after the 23rd of
 256 March 2020?; Q3 = Is your child still having speech and language therapy intervention?; Q4 = If (SLP
 257 intervention) online, how effective do you think this method is?

258 *Submucous cleft palate

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SLP provision during COVID-19.

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269 **Table 2: Number of children with CP+/-L reported to be receiving SLP intervention before COVID-19**
270 **restrictions and due to start SLP intervention after COVID-19 restrictions started.**

	Yes N (%)	No N (%)
Was your child receiving SLP intervention before the first COVID-19 lockdown? (N = 906)	356 (39.3)	550 (60.7)
Was your child due to start speech and language therapy intervention after the 23 rd of March 2020? (N = 547)	49 (9.0)	498 (91.0)

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274 **Table 3: Distribution of children's reported SLP intervention status (N = 403)**

Is your child still having SLP intervention?	N	%
No, treatment had finished	23	5.7
No, delayed due to Covid	197	48.9
Yes, in person	11	2.7
Yes, via online video platform	135	33.5
Other	37	9.2

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SLP provision during COVID-19.

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SLP provision during COVID-19.

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288 **Table 4: Distribution of children’s parent/caregiver reported SLP intervention status by geographical**
 289 **region**

Geographi cal region	a	b	c	d	e	f	g	h	i	j	k	l	m - q	Tot al
SLP interventio n delayed due to COVID-19 N (%)	14 (73. 7)	9 (56. 3)	16 (45. 7)	21 (72. 4)	11 (55. 0)	11 (52. 4)	9 (47. 4)	10 (66. 7)	13 (54. 2)	22 (52. 4)	8 (40. 0)	31 (73. 8)	22 (53. 7)	197 (57. 4)
Still receiving SLP interventio n N (%)	5 (26. 3)	7 (43. 8)	19 (54. 3)	8 (27. 6)	9 (45. 0)	10 (47. 6)	10 (52. 6)	5 (33. 3)	11 (45. 8)	20 (47. 6)	12 (60. 0)	11 (26. 2)	19 (46. 3)	146 (42. 6)
Total	19	16	35	29	20	21	19	15	24	42	20	42	41	343

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SLP provision during COVID-19.

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300 **Table 5: Association between socioeconomic status and whether SLP intervention was ongoing or**
301 **delayed (N = 296)**

Socio-economic status of respondent – Index of Multiple Deprivation (IMD) - Tertiles	SLP intervention delayed due to COVID-19 N (%)	Still receiving SLP intervention N (%)	Chi²	p
IMD 1-3 (Most deprived)	45 (52.9)	40 (47.1)	0.601	0.741
IMD 4-7	63 (60.6)	41 (39.4)		
IMD 8-10 (Least deprived)	63 (58.9)	44 (41.1)		

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SLP provision during COVID-19.

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317 **Table 6: Group mean age (in months) for those still receiving SLP intervention and those whose SLP**
318 **intervention was delayed by COVID-19 (N = 343)**

Covariate	SLP intervention delayed due to COVID-19	Still receiving SLP intervention	z	p
Age in months - Median (IQR)	51.4 (35.6 - 76.3)	40.9 (31.8 - 62.1)	2.89	0.004

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320 **Table 7: Association between child's SLP provision status and time of questionnaire completion**
321 **(N=343)**

Date of completion	SLP intervention delayed due to COVID-19 N (%)	Still receiving SLP intervention N (%)	Chi²	p
Questionnaire completed in July 2020	132 (62.0)	81 (38.0)	4.73	0.030
Questionnaire completed August – October 2020	65 (50.0)	65 (50.0)		

SLP provision during COVID-19.

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324 **Learning outcomes**

325 As a result of reading this paper, readers will be able to describe parent experiences and perspectives of

326 SLP service provision during the first few months of the COVID-19 pandemic restrictions in the UK. They

327 will be able to identify aspects which may inform approaches to service provision planning in their

328 settings post pandemic and international readers will be able to compare these findings to how

329 parents/caregivers around the world may have experienced the impact of the pandemic on SLP service

330 provision, identifying similarities and differences.

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