



# THE LONGER-TERM IMPACT OF COVID-19 RESTRICTIONS ON WOMEN'S POSTPARTUM EXPERIENCE IN ENGLAND: A FOLLOW-UP QUALITATIVE EXPLORATION

Dr Victoria Riley;  
Lorna Sams; Dr  
Jennifer Taylor; Dr  
Naomi Ellis  
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## Abstract

### *Background:*

The coronavirus pandemic has profoundly impacted on women's mental health during pregnancy and postpartum period, yet knowledge of the longer-term effect on new mothers is limited. Our initial exploration of the impact of COVID-19 restrictions on women's pregnancy and post-partum experience found that participants expressed increased emotional and physical distress following isolation from friends, family and health professionals, in addition to limited information about the risk of COVID-19 on pregnancy and pregnancy-related care [1]. To understand the longer-term implication of COVID-19 restrictions, we conducted a follow-up with a subset of participants, to understand the longer-term impact of coronavirus and COVID-19 related restrictions on new mothers, their experiences, ability to cope and any challenges.

### *Methods:*

A qualitative design using semi-structured interviews was used to collect follow-up data as part of a longitudinal study. This study reports 16-month follow-up data from a subsample (n=13), collected in October-November 2021.

### *Results:*

Three themes were developed: "We do seem to be in a constant mode of coping", "Back to normality", and "Everything seems very overwhelming to her [child]". Findings indicate a continued negative impact of COVID-19 on maternal mental health through reduced support

from others, ongoing social restrictions, and concerns about the pandemics impact on their child's social development.

*Conclusions:*

In person emotional and physical support networks for new mothers are important for maternal mental health. At 16-month follow-up maternal mental health was still a concern.

## Introduction

Insight into the longer-term mental health impact on new mothers following pregnancy and/or childbirth during the COVID-19 pandemic is limited [2]. During the pandemic, social legal limits were put in place globally, with UK Government announcing the first lockdown in England on 23 March 2020, ordering people to 'stay at home'. The lockdown was reviewed every three weeks, but no end date was announced. The lockdown was extended until June 2020 when restrictions started to be removed. A second four-week national lockdown began on 5 November 2020, with some exceptions over the festive period, after which England followed a three-tier system of local restrictions. This culminated in a third lockdown between 6 January 2021 and 29 March 2021, before the 'stay at home' order was lifted and people were encouraged to stay local. Most restrictions were removed by July 2021 [3].

The pandemic had a profound impact on women's mental health during pregnancy and postpartum period, including increased levels of anxiety [4-7] and depression [4, 7], with COVID-19 related stress also shown to be high in new mothers [8]. Other symptoms have included feeling down, lonely, irritable, and concerned since lockdowns were first introduced [9]. Lower mental health has been reported during the postpartum period, with increased depression and anxiety post-birth [10] due to greater parenting burden [11], a lack of contact and support from family, ever changing COVID-19 regulations, altered care from health professionals [12-14] and difficulties juggling work and childcare [15].

Infants born during the COVID-19 pandemic may have been developmentally affected [16] by the increased level of stress reported in mothers during this time [17], with significantly lower motor, verbal and cognitive performance than those born pre-pandemic [18]. There is evidence that mothers experiencing stress during other natural disasters, such as ice storms,

floods and heatwaves, show a long-term impact on the physical development of infants as well as their cognitive and behavioural skills [19, 20].

Caregivers and healthcare workers have reported concerns related to infant's limited social interaction with adults and other children and their physical exploration during the COVID-19 pandemic [21]. Lockdown restrictions created social and emotional barriers for grandparents who felt isolated from their grandchildren, despite the use of alternative methods of interacting, such as video-calls [22]. Although there was no impact to overall pre- and post-pandemic Ages and Stages Questionnaire (ASQ-3) scores, a slight decrease in post-pandemic scores related to communication for those aged 6- and 12-months old has been reported [23].

There is increasing evidence indicating the pandemic restrictions have had a detrimental impact on maternal mental health and infant development, however, there are currently limited publications exploring the longer-term impact. Sixteen months ago, we explored, through interviews, the impact of COVID-19 restrictions on women's pregnancy and post-partum experiences. Participants at that time reported increased emotional and physical distress due to isolation from friends, family and health professionals, as well as from limited information about the risk of COVID-19 on pregnancy and pregnancy-related care [1]. To understand the longer-term implications, we conducted a follow-up with a subset of the women, aiming to understand the continued impact of the restrictions on their experiences, ability to cope and any challenges faced 16 months on.

## Methods

### Aim

To understand the longer-term impact of coronavirus and COVID-19 related restrictions on new mothers, their experiences, ability to cope and any challenges.

### Design

The study was of a qualitative design using semi-structured interviews. Ethical approval was received by University of Staffordshire. (Reference SU21-105-RN).

### Setting & sample

Participants (n=25) from our previous study were contacted and invited to talk to us about the impact of COVID-19 restrictions on their postpartum experiences and their child's development 16 months on. Thirteen agreed to take part and were given a £20 online retail voucher in appreciation of their time.

### Data collection

Interviews were semi-structured using an interview topic guide and were conducted by three of the authors (Riley, Sams and Taylor). The interview topic guide was informed by our previous findings, the literature and one of the author's (Ellis) lived experience (Table 1). Topics included coping/managing through the restrictions, the impact of restrictions on children, and experiences of restrictions in healthcare settings. Interviews were audio-recorded and anonymised verbatim transcripts were produced and uploaded to NVivo R1 and transcribed verbatim.

*Table 1. Questions included in the interview schedule*

| <b>Interview Questions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| When we last talked, you were on/due to go on maternity leave/just had your X child/were X many weeks pregnant. So how old are they now?                                                                                                                                                                                                                                                                                                                           |
| It has been a while since we last spoke with you, how have things been since we last spoke?                                                                                                                                                                                                                                                                                                                                                                        |
| Thinking about the pandemic... <ul style="list-style-type: none"> <li>a) What were your experiences of the local restrictions and subsequent national lockdowns?</li> <li>b) How did you feel about the restrictions when they were first lifted/how do you feel about it now?</li> </ul>                                                                                                                                                                          |
| How would you describe your child's relationship with others? <ul style="list-style-type: none"> <li>a) In what ways do you feel the coronavirus pandemic may have impacted on your child's relationship with others?</li> <li>b) Has this changed since the removal of restrictions? If so, in what ways?</li> </ul>                                                                                                                                              |
| What has been your experience (if any) of restrictions during GP, HV or hospital visits since giving birth to your child? <ul style="list-style-type: none"> <li>a) How do you feel about the current restrictions that remain in these settings?</li> </ul>                                                                                                                                                                                                       |
| How have you managed/coped/got on over the last year? <ul style="list-style-type: none"> <li>b) Think back to the lockdown(s) how did you get on? Ways of coping?</li> <li>c) Was this different/change when restrictions eased/now?</li> <li>d) How would you describe the support that you have received from others?</li> <li>e) Is there anything that could have been done to better support you, your well-being and the wellbeing of your child?</li> </ul> |
| How do you feel about the pandemic moving forwards in terms of its impact? Thoughts on any additional lockdowns?                                                                                                                                                                                                                                                                                                                                                   |
| Is there anything that you would like to talk about or anything that we have not discussed that you would like to add?                                                                                                                                                                                                                                                                                                                                             |

### Data analysis

Transcripts were uploaded to NVivo R1 and analysed using inductive Reflexive Thematic Analysis following the six-phase approach set out by Braun and Clarke [24, 25] was used to inductively analyse the data. The analysis was underpinned by a phenomenology, as this method focuses on exploring and describing participants experiences, with the acknowledgement that the same phenomenon can be experienced in a variety of different ways [26]. Each transcript was reviewed several times for familiarisation, and then line-by-line annotations were made identifying semantic (descriptive) and latent (interpretative)

codes. The codes were then clustered to form initial themes. All preliminary codes were developed and reviewed by one author (Sams) and discussed and reflected upon with all authors before agreement of initial themes and their relationships. Initially themes were developed without reference to participants previous interviews. Once preliminary themes were developed, the final cross-sectional analysis focussed on similarities, differences and consistencies between the two time points to understand the participants experiences over time [27]. This framework helped interpret the data and offer a more in-depth understanding of the longer-term impact. All authors engaged with the refinement process, where it was ensured that each theme was supported by evidence from several participants. All authors were involved in the analysis of data from our previous study and were therefore familiar with the original dataset. All authors are Caucasian females with experience of interview techniques and qualitative methodologies, and the fourth author has lived experience of the topic under investigation (having given birth following the UK's first national lockdown).

## Results

Semi-structured interviews were conducted (average age 34 years) by telephone (n=10; average length 47 minutes) and email (n=3) between October and November 2021. Telephone or email interviews were offered to maximise flexibility for participants with young children. Most participants were from England, specifically the West Midlands and West-Central England (n=12; n=1 from Scotland). The age of the babies ranged from 12 to 19 months (average age 15 months), with six of the participants being first time mums and one pregnant with another child.

Three themes were developed: “We do seem to be in a constant mode of coping”, “Back to normality”, and “Everything seems very overwhelming to her [child]”. Each theme is discussed and illustrated by participant quotes.

### “We do seem to be in a constant mode of coping”

This theme captures the longer-term impact the COVID-19 pandemic and continued restrictions had on participants mental health and includes the subthemes ‘impact of restrictions’, ‘feeling isolated’ and ‘health anxiety’. As well as the negative impact on their general mental health, some specifically referred to experiencing health anxiety and/or post-natal anxiety due to the pandemic. The decline in mental health and increase in health anxiety seemed to be perpetuated because of lockdown restrictions, particularly due to isolation, and limited access to healthcare services.

### Impact of restrictions

Some participants discussed general feelings of stress, anxiety and depression: 'I've got post-natal anxiety, which was caused from COVID' (P8), whereas others referred specifically to feeling 'emotionally burnt out' (P10), feeling 'trapped' (P10) at home and 'locked in this house all together, unable to escape...[it] did all get a bit too much' (P2) which led to a sense of being 'at my wits end' (P9). Several participants described the second and third national lockdowns as being particularly difficult: 'The last lot of lockdowns I really struggled, I found [it] so much harder' (P5). Some described how they had reached a point where they could not endure continued restrictions, highlighting the toll on their mental health: 'I was just like I can't cope with this for much longer' (P9). The continued and long-term nature of the restrictions may have instigated a decline in participants mental health which 'took an absolute nose-dive...the restrictions just tipped me over the edge' (P4); 'it really did break me' (P10).

The length of repeated lockdowns appeared to be difficult for participants and felt 'like ground hog day' (P13), suggesting these events were tedious and unwelcome. The fact that some restrictions were lifted in the summer of 2020, but later reinstated impacted participant 5's ability to cope: 'I couldn't handle being in my house anymore, we had been given a bit of freedom for a while, I got used to it and then we were...grounded again'. Reaching breaking point was reported to represent a crucial juncture for some in recognising the need for change: '[at] the end of the second, third lockdown...I just thought I cannot continue like this' (P4). Some participants identified coping strategies including 'going for an hour's walk in the fresh air' (P6), 'dancing and singing...around the house' (P12), or 'me and my friend would meet up indoors...[which]...for my sanity...I needed...that interaction with another adult' (P9).

### Feeling isolated

Isolation seemed to play a substantial role in the participants mental health, particularly in relation to being a new parent. It appeared that not being able to interact and compare stories with others increased anxiety around parenting: 'Just having that anxiety...you just didn't know if you were doing the right thing...it was really hard going' (P10). Participant 4 did not recognise their post-natal anxiety until restrictions eased and they started socialising again, as they had been able to mask their anxiety and 'stick a smile on' when not seeing people in person.

Returning to some normality (e.g., returning to work, seeing people) made some participants feel better: 'The more I went out...the more support, I felt better and better' (P4). However, for some, the return to normality was like a source of anxiety, with one participant describing how her life had fundamentally changed: '[COVID-19] has...given me a lot of social anxiety and so...we don't do anywhere near as much as what we used to' (P10).

### Health anxiety

The COVID-19 restrictions appeared to culminate in some participants experiencing health anxiety, with one participant convincing themselves they 'had got Cancer' (P8) and another felt they were 'dying because...I felt something hard in my throat' (P4). This anxiety extended, for some, to the health of their babies. One took their child to A&E thinking they had 'leukaemia...because he had a little purple pinprick mark on his leg, that was from learning how to sit up himself...[and] that was the start of the real bad health anxiety' (P4). She was aware her anxiety might be irrational describing it as 'going down a rabbit hole' and worrying over 'the slightest thing' and how COVID-19 made her become: 'Hyper-aware of any change

in...body...sensations...even though COVID is different for everyone...I got obsessed really, any slight change, I was...hyper-vigilant ' (P4).

The lack of accessibility to health care services, particularly GPs, was highlighted as an issue that had 'become a lot worse' (P11) compared to pre-pandemic. Not being able to see a GP face-to-face served to exacerbate health anxiety for some, particularly when it came to their child's health. Some expressed a dislike for communicating with GPs remotely, questioning the credibility of a remote diagnosis: 'I have had to send photos across. I just think how you can...see what the problem is through photos?' (P6). Participants acknowledged the pressures on GPs and healthcare services and that the situation was improving, but it was far from its pre-pandemic provision. Interactions with hospitals were seen as a more positive experience with appointments 'easily arranged' (P2), and 'the service and treatment...received...was fantastic' (P1). The pressure on hospitals was highlighted and it was felt that the pressure on A&E could be eased 'if [child] could just see the doctor' (P6).

The lack of support from healthcare professionals reported in our previous study saw participants relying heavily on online resources for information about caring for their child, which led to increased fear, anxiety and concern. This continued lack of support meant some participants were still turning to online sources of health information which further fuelled anxiety: 'Because I am sat on my own, I had gone straight to tumor...and Googled things, but I shouldn't have done' (P3). Reliance on online sources was also reported to increase during lockdown periods because of the absence of being able to turn to others for advice and support: 'If I had got mum friends, maybe that [googling baby's health concerns] wouldn't have happened' (P3).

Although focused more on Health Visitors and Midwives, a lack of face-to-face contact with health care professionals was highlighted as problematic in our previous findings, with reports of participants feeling abandoned. The current study suggests this has not improved, with participants now feeling 'furious' (P4) that they had not received in person contact from Health Visitors, with reports of telephone calls being 'patronising...[and resulting in] feeling you are a failure as a parent' (P10). Participants reported still feeling as though they were missing out on the reassurance that inevitably comes from face-to-face appointments.

The pandemic restrictions appeared to impact the participants mental health, from an increase in general anxiety to more specific mental health conditions. It was suggested by participants that isolation played a pivotal role, as did the difficulty in accessing primary care. Isolation was described in our previous research findings as one of the biggest challenges when pregnant or after giving birth during the first lockdown in the summer of 2020, and sixteen months on, the impact of continued isolation and lack of support from healthcare professionals is striking and seems to be still taking its toll on mental health in different ways.

### "Back to normality"

This theme captures how participants navigated the continued and changing nature of the pandemic and associated restrictions as a new mother and is broken down into the subthemes 'the easing of restrictions', 'importance of vaccinations' and 'family relationships'. Although many participants embraced the easing of restrictions, some described the return to normality as one which was tentative and cautious. In navigating the lifting of restrictions, many participants reported adopting strategies to ensure their families safety. Support

networks continued to be impacted and participants expressed that the easing of the restrictions led to some difficult decisions regarding this support.

#### The easing of restrictions

Many participants embraced the easing of restrictions, particularly in terms of their child(ren) engaging in activities previously restricted. They felt they were 'mak[ing] up for lost time' (P9) and giving their children experiences, e.g., seeing 'friends and family' (P1); 'swimming lessons' (P10); 'baby groups...[going] on holiday...to the beach and things...[they] hadn't had a chance to do' (P2). As society re-opened, participants seemed to want their children to 'see that there's a world out there' (P9), but despite embracing the greater freedom, several participants talked about actively making adjustments to keep their family safe when navigating the return to 'normality'. For example, through being 'cautious...weighing up all the different risk factors...[of] if I take her here, what are the chances of getting COVID?' (P9), not having 'seen as many friends' (P11) and 'if anyone has been unwell, [they] cancel and re-schedule' (P1). One participant delayed their return to work (taking unpaid leave) because of their anxiety surrounding COVID-19 and the easing of restrictions, so they could 'have some time after restrictions were lifted and after being vaccinated...to try and get out more' (P2).

Anxiety relating to catching the COVID-19 virus meant that for some there were limits on how far they embraced the easing of restrictions, e.g. 'the children have 'play dates at home and [visited] soft play centres...[but] left some if they're too busy' (P1). Another participant reported being 'frightened to go to these in case people aren't adhering to the rules' (P10). Some participants 'stuck' to the rules (P11) and were 'happy to follow...[them] as long as [they] can see the benefits...for other members of society' (P9). Others admitted they were

‘slightly more flexible with the rules...[as] I wanted my family to meet my baby and...whether that’s right or wrong...it would have caused more problems if we had stopped people from seeing her’ (P7). Yet, there was an appreciation that it is ‘each to their own...if...there’re people who...are more cautious than you, you have got to...accept that’ (P4).

#### Importance of vaccinations

For all participants, vaccination was felt to be an important part of staying safe as restrictions eased. Despite all participants being vaccinated, there was some concern expressed about its safety when breastfeeding. Some participants were not ‘keen on [being vaccinated] when first breastfeeding [but]...did eventually’ (P11) to reduce the risk of catching COVID-19. One participant was ‘still breastfeeding...and had...all 3 vaccines...trusting medical advice that it is safe to continue breastfeeding’ (P13). There was a need to be ‘reassured...[by] health professionals...[that the vaccination] is completely safe...whilst you are breastfeeding’ (P7), with one participant being told that ‘if you have the vaccine, it is perfectly fine to carry on breastfeeding, but...[you] would be part of the trial...[and] we don’t know what effect it will have on [babies] even now or in the future’ (P8). In this case, the participant ‘stopped feeding [baby] to have the vaccine...in hindsight, it probably would have been better if I had carried on, but I just didn’t want to risk it’ (P8). There were also some concerns about whether other people had been vaccinated. For example, one participant chose not to use a ‘nursery, because [they] weren’t comfortable with [them] going...[as they] don’t know if all the nursery staff are vaccinated’ (P2) and felt they were ‘not allowed to [ask nursery staff]...have you been vaccinated?’ (P3).

### Family relationships

Despite the easing of restrictions, some participants reported that 'there are still family members who haven't seen [child]' (P4) and felt 'it was hard not being able to see the wider family...[as time] goes so quickly when they are that little...[it is] really sad' (P10). Virtual communication was expressed as being key for building family relationships with their child(ren) by using 'FaceTime...[and] without that...it would have been so much harder...[family] have been a constant in his life even [using] FaceTime or video call...I feel he knows them' (P5). Highlighted in our previous research findings as being a significant source of distress, not being able to spend time with friends and family was still described as 'really, really hard...not having that support structure' (P2), with participant 7 describing how important a support network is: 'It just really helps...[having someone] who is at the same time, just as tired as you are, just...struggling.' Participant 2 highlighted how social interaction was particularly important for their own mental health: '[because after] eighteen months of 24/7 parenting and nothing else...being back at work actually has forced me to switch off...I was probably on the edge of not really coping and needing some time for myself'.

The easing of restrictions seemed to lead to some difficult decisions relating to who would form part of their support network. For some, this 'caused so much tension...within our household...a lot of resentment' (P4), with one participant describing it as becoming 'quite political' (P9) as they could only form a support network with one set of grandparents. Seeing grandparents meant adjustments had to be made in some instances, like removing their child from nursery 'to isolate as a family, so we could see my parents at Christmas' (P2).

This theme reflects issues of support identified by participants in our previous findings, and demonstrates that after sixteen months, these feelings of isolation are still reported to be prevalent. Despite the gradual reopening of society which was generally welcomed and

embraced, feelings of anxiety and the need to adjust to keep their families safe as restrictions eased were evident.

“Everything seems very overwhelming to her [child]”

This theme captures how participants felt their child’s social interactions and development had been directly impacted by the lockdown restrictions and associated isolation and incorporates the subthemes ‘childrens social interactions’, ‘childcare, ‘comparison with older siblings’ and ‘impact of restrictions’.

#### Childrens social interactions

The lack of interaction because of lockdown restrictions appeared to lead to some children being upset when they encountered new people or settings. One participant described their child as being guarded when interacting with people outside of their family unit: ‘My youngest was initially wary of new people...due to having got used to just me, dad, brother during lockdowns’ (P13). Several participants described the impact that not socialising had on their child’s ability to play with other children: ‘Lockdown babies...find it hard to interact, they would rather play on their own’ (P3).

Participants found the lack of socialisation impacted their child’s relationship with family which was difficult for both parties: ‘She would scream [if grandparents picked her up]...that was devastating to my parents...my Mum cried and said, “I am so sorry we haven't been able to do more”...she obviously feels quite guilty’ (P2). This was particularly difficult for those who relied on grandparents for childcare: ‘[It] has taken such a long time to...build...that

trust...between her and her grandparents, just because she was never left with them [before]' (P9). Participants attributed their child's difficulties interacting with others to 'lockdown and not being around very many people' (P5). Although not identified as an issue for all participants, the practical and emotional implications were great with one describing the loss of such relationships as 'so sad' (P2). The feeling of being isolated from family was identified as a particular challenge in our previous findings and shows that for some, their initial concerns over their child's ability to socialise have become a reality.

#### Childcare

It was perceived 'important for them [to be at nursery]...to be around other kids and germs and...to have that experience' (P7), as they 'need those interactions and that socialising with other kids...to form those relationships with other adults' (P9). However, finding a nursery was difficult as many 'didn't have any spaces [therefore, child] still hasn't actually started nursery' (P11). Other participants 'had never been inside [their child's nursery as they] had to choose it via video...nobody would let [them in]' (P3). The children that went to nursery were described as 'quite sociable' (P6) and 'coming on [developmentally] in leaps and bounds' (P3). For most participants, thoughts about childcare came as decisions were being made about returning to work, resulting in a 'mixture of feelings' (P9). Some participants went 'back to work probably sooner than [they] anticipated purely because...we couldn't do anything or go [out] anyway' (P9). Some made 'the decision to go back to work full-time as [their partner] wasn't getting a full wage' (P10) due to being furloughed (Government scheme to support those unable to work throughout the lockdowns). Others felt that '[they] didn't really want to leave [their children]' (P8) and were 'absolutely devastated to return to work...[they had a] fear [of] going back' (P5).

### Comparisons with older siblings

Those with older children were able to make comparisons between their children's early experiences: '[I've] realise[d] how incredibly awful this was compared to [previously]...she is having such a different [experience]' (P2). Participants felt 'cheated' (P3) that their children 'missed out on so much' (P5). They experienced feelings of 'guilt [that]...they are missing out on all those normal things that they should be able to do as children' (P9) and had the desire to get the children 'integrated into society' (P10). However, this was tinged with feeling 'apprehensive about leaving [them] with people...I haven't got that confidence...that she is going to be alright...when I leave her' (P9). Participant 9 reflected on how this partly led to a difference in feeding her children:

the first baby was breastfed only for a few weeks and then bottle fed so I could leave her with people, whereas the second baby was breastfed for much longer [as]...I didn't have that option to leave her with people...in terms of attachment...that has an impact too...I probably wouldn't have breastfed her for as long had it not been for being in a lockdown because...I had the time to invest in breastfeeding (P9).

### Impact of restrictions

In our previous study, participants felt regret that the pandemic had led to missing out on a 'typical' pregnancy experience and 16 months on these feelings of missing out are now focused on what the child has missed. However, some participants reported that now 'it was easier to go to places and not have all the rules and regulations around it' (P6) and feel that their children 'do enough now to make up' (P12) for missed opportunities during lockdown. They are 'so young...[they're] not going to ask...[questions]...it is just normal' (P7).

Participants acknowledged that there was an improvement in their child's interaction since lockdown restrictions had started to ease, but there was uncertainty and concern over the long-term impact on social development: '[I] think [they] are going to see the impact of this for years to come' (P4). Worries and concerns expressed in our previous study about the potential impact of the pandemic and lack of interactions with others on their child's social development, are still evident 16 months on and have become more of a concern over time with continued restrictions.

## Discussion

Follow-up interviews, 16 months later, with women who were either pregnant or had given birth during the first UK national lockdown, suggested the COVID-19 pandemic restrictions continued to negatively impact mental health, with some specifically reporting health anxiety. For some this was exacerbated by continued isolation, limited information about the safety of the COVID-19 vaccinations when breastfeeding and the continued difficulty accessing primary care. Similar feelings of frustration with the lack of post-natal support were identified by a longitudinal study covering a similar time period [2]. Isolation was previously described as one of the biggest challenges after giving birth [1, 28] and the mental health impact from continued isolation was evident at this follow-up, with the lifting of restrictions causing feelings of anxiety, resulting from the need to keep families safe.

In addition, concerns expressed in our previous study about the potential impact of the pandemic on their child's social development have become a reality for some. Insight into the impact of COVID-19 restrictions on children's social development is limited. Yet, there is emerging evidence that the pandemic has limited children's interactions with adults and peers [16] as participants in this current study reported their child's social interaction skills had been impacted and they preferred to play alone. This could be linked to the lack of access to peer modelling because of social restrictions [21]. Participants described that the trusting relationship between grandparent-child had not been established causing feelings of sadness or guilt for the grandparent, and the importance of frequent physical contact for the child-grandparent dyad to develop a close relationship has been highlighted [29]. Interrupted development of a child's socio-emotional skills can impact their future relationships, decision

making and self-confidence, leaving them vulnerable to unwanted behaviours such as substance abuse or aggressive tendencies [30, 31]

The continued alterations in healthcare structures and processes [13], and reduced access to essential services, resulted in limited infant development monitoring during the pandemic [32]. The lack of accessibility to healthcare services and the inability to see a GP face-to-face, increased participants anxiety over their child's health and development. It is important for healthcare services to evolve with the changing circumstances and although virtual support was not perceived as being successful for breastfeeding support in our previous study, some aspects of an infant's development support may be appropriate for 'telehealth' [33, 34].

The continued restrictions prolonged feelings of loneliness due to limited emotional and physical support from friends and family [35]. Loneliness has been reported by postpartum women since lockdown began and was deemed to negatively affect their mental health [36]. With the easing of restrictions, participants in this longitudinal study reported suffering from social anxiety, having been isolated from society for so long. Vaccinations were seen as an important strategy for socialising while avoiding COVID-19, but there were concerns over its safety while breastfeeding. Previous evidence suggests that a large proportion of breastfeeding mothers were unsure about getting vaccinated [37] which was also reflected in this current study. Schaal et al. (2022) reported this hesitancy stemmed from having limited scientific evidence on vaccination safety and the fear of potential harm to the infant [37], as a direct consequence of the minimal time from development to delivery when compared with other vaccines [38].

## Strengths and limitations

This study captured the impact of the restrictions on the experiences of women who had given birth and/or who were pregnant during the first UK national lockdown particularly their ability to cope and any challenges faced 16 months on. One author (Ellis) brought lived experience further strengthening the phenomenological approach to the research having given birth following the UK's first national lockdown. However, most participants were from the West Midlands and West-Central England, which limits the transferability of the findings to other areas of the UK where services and experiences may differ.

## Implications for practice

Sixteen months on from our previous study, it remains evident there is a need to protect new mothers from added emotional distress to avoid postpartum mental health problems [39, 40]. In addition, new mothers need to be supported in finding opportunities for interaction with other new parents as well as having face-to-face interaction with health care providers.

To mitigate the impact of reduced contact with healthcare professionals, there is a need to monitor child development to target support where it is needed. This could include the development of telehealth via virtual platforms to monitor infant development [33, 34].

## Conclusion

Data from this study indicates a continued negative impact of COVID-19 on maternal mental health through reduced support from others and ongoing social restrictions. This was evidenced through challenges when returning to 'normality' as a new mum. These findings highlight the importance of in person emotional and physical support networks for new mothers and the need for healthcare professionals to support parents in identifying key infant development goals and providing more opportunities to interact. In addition, there is a need for research into the impact of the COVID-19 pandemic on the continued development of babies born during this time.

## List of abbreviations

COVID - Coronavirus

COVID-19 – Coronavirus 2019

GP(s) – General practitioner(s)

## Declarations

*Ethics approval and consent to participate:* Ethical approval was received by University of Staffordshire (Reference SU21-105-RN). The procedures followed were in accordance with the ethical standards of the institutional committee and with the Helsinki Declaration of 1975. Written and audio-recorded verbal informed consent was received by those that were interviewed.

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*Author's information:* Victoria Riley, Research Fellow, Staffordshire University,  
Victoria.Riley@staffs.ac.uk

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