Process evaluation of Virtual Pregnancy in Mind during the COVID-19 pandemic

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May 2021
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Acknowledgements

We would like to thank all of the NSPCC teams who contributed to the evaluation, and Louise Harrington, Development and Impact Manager, Gillian McElroy and Jade Bignall, Projects and Performance team. We would also like to thank Zsuzsanna Godany and Suzanne Rogers for providing administrative support. Finally, we want to thank both our internal and external reviewers for their invaluable feedback.
Executive Summary

Experiencing anxiety or depression in the perinatal period is known to have a negative impact on parents’ ability to form and nurture a responsive relationship with their baby, which is critical for healthy cognitive, and social and emotional development outcomes (National Scientific Council on the Developing Child, 2004). Before the COVID-19 pandemic, approximately 20 per cent of mothers experienced depression or other mental health disorders in early pregnancy (Howard et al., 2018) and between five and 15 percent of fathers experienced anxiety or depression in the perinatal period (Leach et al., 2016). The COVID-19 pandemic has affected parents’ experiences of both pregnancy and the first year of a baby’s life, with parents feeling more anxious, experiencing changes to antenatal and postnatal care, and reduced support from social networks and services (Saunders et al., 2020). Research has attributed an increase in perinatal depression to the pandemic (Chmielewska et al., 2021). Given this evidence, providing appropriate support to parents in the perinatal period is critically important.

Pregnancy in Mind is a preventative group work programme for parents who are experiencing, or at risk of, mild to moderate anxiety and depression during the perinatal period. Programme content is based around the six core themes, and a toolbox of activities to select from, enabling the programme to be tailored to the specific needs of each group or individual parent. The face-to-face programme has undergone formative and process evaluations. The most recent evaluation found statistically significant improvements in depression and anxiety among parents, and made recommendations on promoting referrals, strengthening referral pathways and increasing inclusivity and diversity among parents (Thomas et al., 2020).

Virtual Pregnancy in Mind is a digital version of the Pregnancy in Mind programme. While the six core themes and the toolbox of activities delivered are the same, virtual Pregnancy in Mind is delivered via phone and videoconferencing app.

At the beginning of lockdowns in the UK, NSPCC Pregnancy in Mind practitioners sought out ways of continuing to deliver Pregnancy in Mind in a COVID-safe way. This current mixed methods evaluation involved six team managers and 17 practitioners and used routinely collected case data so that important learning about virtual and digital delivery of the Pregnancy in Mind programme could be captured during this period. The associated limitations include: not being able to engage the voice of service users due to COVID-19; using routine data that has been collected for service monitoring rather than evaluation; potential for bias arising from researchers based in the same NSPCC team as the programme developer; and adopting a design that did not involve a control group of parents (see p13 for full detail on limitations).
The evaluation had the following objectives:

1. To document and describe practitioners’ experiences of adapting the Pregnancy in Mind programme and delivering using virtual and digital methods during the COVID-19 pandemic.

2. To examine patterns of referral associated with virtual Pregnancy in Mind.

3. To understand how delivering Pregnancy in Mind using virtual and digital methods impacted on assessment and completing standardised measures.

4. To identify key enablers and challenges associated with delivery of virtual Pregnancy in Mind.

5. To find out if virtual Pregnancy in Mind is acceptable to practitioners.

6. To establish whether parents who accessed virtual Pregnancy in Mind during the COVID-19 pandemic experienced an improvement in anxiety and depression, as measured by the Generalised Anxiety Disorder 7 (GAD-7) and the Patient Health Questionnaire 9 (PHQ-9), measures routinely used in service delivery.

The process of adapting Pregnancy in Mind to virtual and digital delivery was organic. Drawing on collective practice wisdom and expertise within and across teams, practitioners reported experimenting with videoconferencing and messaging apps, the length and content of sessions, as well as sequencing individual support with group activities to build relationships and parental confidence with virtual and digital delivery. This learning and experience fed into a co-ordinated virtual model, rolled out across all teams to ensure a consistent offer to parents across locations.

Virtual Pregnancy in Mind was delivered to 186 parents between 23 March and 30 September 2020, primarily as a group work programme using videoconferencing apps.

Key findings from the current evaluation include:

- **There was a period of early adaptation in response to local need, before pooling key learning into a co-ordinated virtual model and consistent offer:** Practitioners’ early responses to the UK lockdowns involved focussing on local need, maintaining contact with referred parents and adapting programme activities for virtual delivery. There was variation in how teams used technology to support delivery, and in their use of one-to-one and group work sessions with parents. Session length and content were also adapted making them more suitable for virtual delivery.

- **While referral volume and source remained the same following lockdown, reasons for referral differed:** Similar to the face-to-face programme, health professionals were the main source of referrals to virtual Pregnancy in Mind. Proportionately more concerns related to parental mental health difficulties and parental stress, and fewer related to parenting, than in the previous non-COVID year. The COVID context was identified as contributing to parental anxiety.
A new way of working to assess need: Practitioners were able to adapt to a new way of working in undertaking holistic assessments virtually and transferred their expertise and skills to completing standardised measures virtually.

Practitioners identified a range of enablers and challenges associated with virtual delivery: Key enablers included a supportive local context with existing pathways, demand and awareness, as well as stability, support and readiness in the local delivery team. The key challenges related to practitioner anxiety and uncertainty around technology, specific technical problems and technology as a barrier for service users.

Overall, the virtual programme was acceptable to practitioners: Benefits identified included extending geographical reach and developing relationships at a pace that suited anxious parents. However, concerns remained for some around building relationships with and between parents, and increasing diversity and inclusion among parents.

Virtual Pregnancy in Mind is associated with significant improvement in depression and anxiety among parents: Those who experienced higher levels of depression and anxiety at assessment showed the greatest improvement over the six sessions, typically accessed over nine weeks.

The evidence presented in this evaluation suggests virtual Pregnancy in Mind can help address the gap in provision for parents in the perinatal period experiencing, or at risk of experiencing mild or moderate anxiety and depression.
Introduction

The perinatal period – a critical time for child development

Pregnancy and the first year of a baby’s life, known as the perinatal period, is a very important time for families. Parents face significant change as they prepare for and adjust to parenthood. For babies, it is a time of rapid growth as they develop and begin to experience the world within the context of relationships, laying the foundations for a positive parent-infant relationship and shaping early social and emotional development (National Scientific Council on the Developing Child, 2004). Research tells us that:

▷ A mother tuning into their baby’s needs and responding in a sensitive, appropriate, and timely way, provides her baby with a sense of safety and comfort which in turn supports the baby’s learning and development as they explore the world (Alhusen et al., 2013).

▷ The quality of the parent-foetal relationship can be a key predictor of the quality of mothers’ and fathers’ postnatal interaction with their baby (Foley and Hughes, 2018).

▷ Mothers and fathers who have positive thoughts and feelings about their unborn baby are more likely to be able to notice, interpret, and respond to their baby’s signals in an appropriate and timely way following the birth (Foley and Hughes, 2018).

Anxiety and depression in the perinatal period

It is well established that if the mother experiences stress, anxiety or depression during pregnancy, this increases the risk for a range of problems for her future child due to foetal exposure to cortisol (Glover, 2020). This experience of depression or anxiety can make it more difficult for parents to respond sensitively to their baby’s signals and is an additional risk factor for developing postnatal depression (Delicate et al., 2018). We understand that approximately 20 percent of mothers experience depression or other mental health disorders in early pregnancy (Howard et al., 2018) and between five and 15 percent of fathers experience anxiety in the perinatal period (Leach et al., 2016).

Impact of COVID-19 pandemic on perinatal mental health

Research has attributed an increase in perinatal depression to the COVID-19 pandemic (Chmielewska et al., 2021). An online survey of 5,474 expectant or new parents across the UK, completed between April and June 2020¹ found that the majority were more anxious after COVID-19 and the lockdown. Changes to antenatal and postnatal care, and reduced support from social networks and services, may also have been factors (Saunders et al., 2020). Others have also noted that these factors, and the risk of COVID-19 infection, have all served to increase psychological distress and feelings of loneliness amongst pregnant women and new mothers, with those experiencing socioeconomic deprivation, being a woman of colour, having a pre-term baby, or having to travel to work, at greatest risk (Chivers et al., 2020; Dib et al., 2020; Papworth et al., 2021).

¹ The survey included the views of 1,480 pregnant women, 800 women who had given birth during lockdown and 91 father/other co-parents.
Barriers to accessing perinatal mental health services

There is increased awareness of perinatal mental health challenges among policymakers, and the need to provide appropriate support to parents through universal and specialist services. This has been acknowledged in the allocation of strategic funding for service development in the NHS Long Term Plan and Mental Health Implementation Plan in England (NHS, 2019a, 2019b), and for the development of a new perinatal mental health delivery model in Northern Ireland (Department of Health, 2021). Even when services are available, there are multiple barriers to identifying need, and engaging with support, including fear of the consequences of asking for help, parents’ lack of knowledge about mental health issues, stigma, and the quality of the relationship between mothers and health professionals (Cunningham et al., 2018; Witcombe-Hayes et al., 2018). We understand from research that language and cultural barriers impact access to mental health services for women with perinatal mental illness (Sambrook Smith et al., 2018). A study of variation and ethnic inequalities in the treatment of common mental disorders before, during and after pregnancy, found that fewer minority ethnic women accessed treatments compared to white British women despite being 55-70 per cent more likely to have anxiety recorded in their medical records (Prady et al., 2016).

Providing perinatal mental health support using virtual and digital methods

Prior to the emergence of COVID-19, virtual and digital delivery methods were developed and used in delivering services and programmes to parents during the perinatal period. This included educational parenting programmes (Shorey and Ng, 2019), perinatal health care programmes (van den Heuvel et al., 2018; Daly et al., 2020) as well as those specifically targeting anxiety and depression (Danaher et al., 2012; Hussain-Shamsy et al., 2020). Digital methods included e/web-based delivery and mobile apps. The available evidence reported on these programmes suggests more have been designed for and targeted at mothers than for fathers (Danaher et al., 2012; Shorey and Ng, 2019; Daly et al., 2020).

Overall, existing research indicates that virtual and digital delivery has been well received by service users (Ashford et al., 2016; Daly et al., 2020; Hussain-Shamsy et al., 2020). Parents and professionals report satisfaction with support provided (van den Heuvel et al., 2018; Shorey and Ng, 2019). Virtual and digital delivery can provide a relatively anonymised, less stigmatising means of accessing support or advice, that encourages help seeking behaviours and increases engagement (Danaher et al., 2012; Shorey and Ng, 2019). Digital delivery can provide increased flexibility for parents, enabling them to access information and resources outside of the usual working day, or ‘on demand’ content (Danaher et al., 2012; Hussain-Shamsy et al., 2020).

Research has also identified challenges. Virtual and digital delivery provides fewer opportunities for demonstrating, hands-on practice and mastery of practical parenting skills than face-to-face delivery (Shorey and Ng, 2019). Challenges have been noted in relation to the design of virtual and digital programmes: in striking an appropriate balance between

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2 This evaluation uses the Early Intervention Foundation’s definition of virtual and digital services, i.e., those which can be delivered remotely without any traditional face-to-face interaction between provider and participant. This may include delivery via digital interfaces, such as videoconferencing and online training courses, as well as contact by phone, email or chatroom (Martin et al., 2020).
self-directed and professionally guided activity (Danaher et al., 2012) and in maximising the use of professionals’ expertise and capabilities (Hussian-Shamsy et al., 2020). Professionals need to be trained in virtual or digital tools and delivery methods, so that programmes are viewed as integral rather than existing in parallel to established face-to-face support (van den Heuvel et al., 2018). IT infrastructure, access and connectivity have also been noted as challenges for some organisations (Martin et al., 2020). Professionals have also expressed concerns around privacy and data (Van den Heuvel et al., 2018).

The effectiveness of virtual and digital delivery has been confirmed in international research reviews. These include a UK review of 11 studies concluding that computer or web-based interventions targeting maternal perinatal mental health are promising, particularly for women experiencing depression (Ashford et al., 2016). A review of 16 studies of virtual and digital delivery of perinatal mental health care reported positive effects, including significant reductions in symptoms and on measures of depression compared with treatment as usual (van den Heuvel et al., 2018). A Canadian scoping review that included 22 studies on the use of mobile phone-based interventions including apps for perinatal depression and anxiety, reported that their use was most appropriate for women experiencing mild-to-moderate symptoms (Hussain-Shamsy et al., 2020). Further evidence is needed on cost and cost effectiveness, fathers’ perceptions of virtual and digital delivery, effectiveness for anxiety outcomes, and the impact on those who have otherwise limited access to support (Ashford et al., 2016; van den Heuvel et al., 2018; Shorey and Ng, 2019; Hussain-Shamsy et al., 2020).

The Pregnancy in Mind programme

Virtual Pregnancy in Mind is a digital version of Pregnancy in Mind, a face-to-face, preventative group work programme for parents who are experiencing, or at risk of, mild to moderate anxiety and depression during the perinatal period. Referrals are received from midwives, children’s social care, and less frequently from GPs and parents themselves.

The Pregnancy in Mind programme aims to enable parents to build relationships, knowledge, and skills, which will help them to manage some of their more challenging feelings differently and support a reduction in the severity and impact of their anxiety and depression. The overall aim of this programme is to have a positive impact on parents’ interactions with their babies (See Appendix 1 Theory of Change). Programme content and ethos is based around the six core themes:

- mindfulness meditation
- active relaxation
- psychoeducation and coping skills
- social support
- awareness-raising of foetal development
- the couple or co-parenting relationship.

A toolbox of activities then enables practitioners to tailor session content according to the specific needs of each group or individual.

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3 For further detail: https://learning.nspcc.org.uk/services-children-families/pregnancy-in-mind
Previous evaluation of Pregnancy in Mind

Pregnancy in Mind initially underwent a formative evaluation during the first phase of its implementation from 2015–2017. This was followed with a process evaluation, which examined programme feasibility and found statistically significant improvements in depression and anxiety among service users. Recommendations included communicating about the programme to promote referrals, strengthening referral pathways and increasing inclusivity and diversity among parents (Thomas et al., 2020).

The virtual Pregnancy in Mind programme

Following the announcement of COVID-19 related restrictions and a UK lockdown in March 2020, the NSPCC continued to provide support to parents whilst developing a virtual Pregnancy in Mind offer for parents across the UK. The virtual programme is an adaptation of the face-to-face Pregnancy in Mind programme, which was being delivered and had been evaluated prior to the COVID-19 pandemic. While the six core themes and the toolbox of activities are common to both the face-to-face and virtual programme, virtual Pregnancy in Mind is delivered via telephone and videoconferencing apps, rather than in person.

The virtual Pregnancy in Mind programme consists of:

- An initial holistic one-to-one assessment of need, completed by telephone or videoconferencing app.
- An introductory group work session, enabling attendees to meet and to ensure that everyone is acquainted with the videoconferencing software (followed up with a one-to-one mini-wellbeing check).
- Four weekly group work sessions delivered using videoconferencing (each followed up by a weekly one-to-one wellbeing-check, where standardised measures are administered to measure levels of anxiety and depression).
- An ending session (followed up with a one-to-one mini-wellbeing check).
- Option to join a messaging app group chat for peer support set up by practitioners.

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4 The assessment’s key aim is to assess suitability, and whether the service is the right one and likely to meet the parent’s needs, to get an understanding of any potential risks, and to refer parents on who require a different or higher-level service where their needs would not be met by virtual Pregnancy in Mind. It is completed over one or two sessions, identifies strengths, areas to be worried about and next steps. A separate assessment session is usually completed with dads/partners. Face-to-face assessment completed on a home visit (not virtually) also provided an opportunity to assess others in the household. The assessment includes completion of the GAD–7 and PHQ–9 standardised measures, which on their own do not provide context or a holistic picture of risk and needs, and need to be considered within the context of a wider assessment.

5 GAD–7 Generalized Anxiety Disorder (Spitzer et al., 2006) and PHQ–9 depression subscale (Patient Health Questionnaire (Kroenke et al., 2001))
Virtual Pregnancy in Mind is delivered weekly, and eligibility for the programme has been extended to include parents between 12 and 34 weeks of pregnancy. While the virtual programme contains fewer and shorter group sessions than the face-to-face programme, it also includes one-to-one wellbeing checks, which provides an opportunity to tailor programme content to the specific needs of participants. The option of one-to-one delivery is considered for those who do not wish to join a group, or who are unable to due to anxiety levels. Virtual Pregnancy in Mind was delivered to 426 parents from when lockdown began on 23rd March 2020 up to 31st March 2021.

Objectives of the evaluation

The key objectives of the evaluation were:

1. To document and describe practitioners’ experiences of adapting the Pregnancy in Mind programme and delivering using virtual and digital methods during the COVID-19 pandemic.

2. To examine patterns of referral associated with virtual Pregnancy in Mind.

3. To understand how delivering Pregnancy in Mind using virtual and digital methods impacted on assessment and completing standardised measures.

4. To identify key enablers and challenges associated with delivery of virtual Pregnancy in Mind.

5. To find out if virtual Pregnancy in Mind is acceptable to practitioners.

6. To establish whether parents who accessed virtual Pregnancy in Mind during the COVID-19 pandemic experienced an improvement in anxiety and depression, as measured by the Generalised Anxiety Disorder 7 (GAD-7) and the Patient Health Questionnaire 9 (PHQ-9), measures routinely used in service delivery.
Methods

Design

The evaluation included both qualitative and quantitative approaches. Interviews and focus groups were hosted virtually, between July–Sept 2020 with six team managers and 17 practitioners delivering the virtual Pregnancy in Mind programme across six locations.

The quantitative element used a longitudinal design to assess if there was any improvement in the level of self-reported anxiety and depression for 88 parents who provided consent for their GAD-7 and PHQ-9 standardised measures data to be used in the evaluation.6

An additional qualitative element involved a descriptive analysis of administrative case data for all 186 parents who accessed the programme between 23rd March and 30th September 2020, to identify the characteristics of parents, how they accessed the programme virtually as well as referral patterns. While acknowledging that the delivery format and model of virtual Pregnancy in Mind differs from the face-to-face programme, and that data recording practices were impacted by the pandemic, some comparison of data has been made between the 2020 COVID-19 period and 2019, the previous non-COVID period to help understand referrals to virtual Pregnancy in Mind, being delivered in a pandemic context when face-to-face Pregnancy in Mind and other perinatal support were unavailable.

Participants

The six Pregnancy in Mind teams who took part in this evaluation were based across the UK; Leeds/Bradford, Jersey, Swindon, Tidworth and York and South Wales.7 Three teams are more established and have been delivering the Pregnancy in Mind face-to-face programme since 2015/16 while three teams began delivering the programme in 2018/19.

One hundred and eighty-six parents accessed virtual Pregnancy in Mind between 23 March and 30 September 2020. These parents ranged in age from 16-43 years, with an average age of 29 years. More than three quarters of parents (146) were of White ethnicity. One hundred and eighty parents were female, three were men8 and gender was unknown in three cases. Three quarters identified as heterosexual, and 1 in 5 identified as having a disability. There were 23 women who attended at least one session with a partner/supporter recorded and 88 per cent of cases (163) were recorded as not having a partner/supporter present. See Appendix 2, Table 1 for a full breakdown.

6 Analysis of mean differences between these 88 parents and the remaining 98 parents who received virtual Pregnancy in Mind during this period indicates there are statistically significant differences in age across parents in the 2 groups. See Appendix 2, Table 6.
7 From December 2020, virtual Pregnancy in Mind is no longer delivered in South Wales.
8 These men were attending, with their own assessment and needs, rather than attending sessions with mothers in a supportive capacity.
Methods and procedures

Interview and focus group data were collected in a COVID-secure way using videoconferencing and telephone calls. All data collection, processing and analysis adhered to NSPCC data compliance procedures. Thematic analysis of the interview and focus group data was completed using NVivo 12, while SPSS and MPlus were used in analysing the administrative case and outcome data. An independent latent growth modelling analysis was completed by Ulster University to assess change over the sessions of the virtual Pregnancy in Mind programme.

Ethical issues

Approval for the interviews and focus groups with practitioners and team managers, and analysis of administrative data was granted through the Research Review process at NSPCC, which determined that it did not require review of the Research Ethics Committee. Additional approval to contact past Pregnancy in Mind service users for consent to analyse their GAD-7 and PHQ-9 scores was granted by the NSPCC Research Ethics Committee.

Limitations of the evaluation

A limitation of this evaluation is that service users who used virtual Pregnancy in Mind were not interviewed because of practical restrictions due to Covid-19; however, the impact of the intervention on their mental wellbeing was captured through routinely collected data. There are also limitations associated with routine data (e.g., missing data), which has been collected for a primary purpose of monitoring service delivery rather than evaluation. In addition, this evaluation was completed by researchers within the NSPCC Development and Impact team, part of the team who developed and implemented virtual Pregnancy in Mind, leaving potential for bias. This evaluation used a longitudinal design to assess change in parents’ reported anxiety and depression outcomes over the sessions of virtual Pregnancy in Mind. As there was no control group of parents, nor random allocation of parents to virtual Pregnancy in Mind and an alternative form of support, it cannot be known whether any change is attributable to virtual Pregnancy in Mind.

Moreover, it is important to note that this evaluation took place within the context of the COVID-19 pandemic, which has affected parents’ access to other services and forms of support. Statistically significant differences noted in the age of parents between the group of 88 who provided consent for their measures data to be used to evaluate virtual Pregnancy in Mind and the other 98 parents who accessed the programme at the same time, limit the generalisability of the results to all parents who engaged with virtual Pregnancy in Mind between 23 March and 30 September 2020. See Appendix 2, Table 6 for full details.
Findings

Practitioners’ experiences of adapting and delivering virtual Pregnancy in Mind

Early adaptation to respond to local need
In the early days and weeks after the UK lockdown was announced in March 2020, the six teams delivering the Pregnancy in Mind programme sought to best respond to local need by securing access to and becoming familiar with using videoconferencing and messaging apps to maintain contact with referred parents and adapt programme activities to suit virtual and digital delivery.

“Well, in [location], what we did initially when lockdown happened, we just got our heads together and decided that we are going to have to re-jig things and just see how we can continue offering this service because we felt that it’s a service that is needed and even more so with lockdown, and everything just being swiped away from under people’s feet and pregnant women and others have just been left with really little to support them.” (Practitioner, focus group)

Practitioners were aware of the how the pandemic was impacting parents’ access to midwifery support services and the associated anxiety. The inclusion criteria for the programme were extended to address this gap in provision for women at later stage of pregnancy.

“I think people were delighted that we are offering something because the midwifery service has been squeezed and I think in lockdown pregnant women had virtually nothing really. Actually, what might have been quite a nice reassuring appointment previously during a pregnancy is now something that might fill you with horror, the thought of having to go into the hospital or into a health centre.”

Team manager, more recently established Pregnancy in Mind location

“So normally we would cut off at around 25 weeks and we are taking up to 34 at the moment. The reason for that was because there was no antenatal provision or very little provision set up ... We had women phoning up who were saying ‘Could I have the service, I’m 34 weeks.’” (Team manager, older established Pregnancy in Mind location)

Overall, there was variation in how teams used technology to support delivery. Four of the six teams reported having a group up and running by the end of April using videoconferencing apps, two of whom did so by building some one-to-one into the early sessions of their group programmes. They found that starting with a few one-to-one sessions to build a relationship and parental confidence with virtual and digital delivery before moving into group sessions with other parents worked well. The other two teams engaged parents in a one-to-one programme over the phone.
Some of the teams who had a group in progress or were about to start a new group when lockdown was announced, reported mobilising very quickly to meet needs of referred parents. All of the teams found that virtual and digital delivery was more intense for practitioners and parents. Session length and content were reduced to accommodate this, as well as the fact that a free videoconferencing app account lasted 40 minutes, before upgrades were purchased.

“What we found out quickly was being on the phone for more than an hour was extremely exhausting for both the service user and the worker. It was not possible to do the normal programme which is a 2-hour session so it became really apparent that that wasn't going to happen whether there is any group or individual. We cut it down to about 45 minutes to an hour.”

Team manager, older established Pregnancy in Mind location

Some practitioners also reported a challenge in those early days, of focussing parents on the specific themes and activities of the programme.

“I think just at that point women were just wanting someone to talk to. In my head, I was thinking this is the Pregnancy in Mind service, we are going to be doing Pregnancy in Mind things but they just wanted to have a chat... but one thing I found really helped me as in getting content in and reigning them in a bit, because there was a tendency to just talk and talk was to make it really structured and say from the beginning…” (Practitioner, focus group)

**Pooling key learning into a co-ordinated virtual model and consistent offer**

Sharing practice and learning with colleagues across teams and working with the Development and Impact Manager led to the creation of a co-ordinated virtual Pregnancy in Mind model that was rolled out across all teams in early June 2020. Virtual Pregnancy in Mind was delivered to 186 parents via group work or a one-to-one model. Practitioners described using the one-to-one telephone-based wellbeing checks to tailor the programme to parents’ specific needs not always addressed within group work. All but one team reported using one-to-one telephone wellbeing checks to administer the standardised wellbeing measures weekly. Some teams reported that parents had formed peer support groups using messaging apps by the end of the programme. Yet, practitioners thought this was particular to individual groups of parents, rather than something that happened across the board.

**Referral patterns: volume, source and reason for referral**

**No evidence of a COVID-19 related change in referral volume**

There was a total of 192 new referrals received for virtual Pregnancy in Mind between 23 March and 30 September 2020. As the data presented in Figure 1 shows, the volume of referrals increased through April and May as Pregnancy in Mind teams promoted the availability of virtual Pregnancy in Mind among local referral partners and agencies. However, referrals dropped by a third (31%) across the summer months between June and September when lockdown restrictions eased, and health staff returned to their midwifery roles. The limitations of comparing data from the 2020 COVID period with the previous 2019 year have
been acknowledged (see p13). However, comparison of referral patterns across these periods also indicates a drop in the volume of referrals experienced by face-to-face Pregnancy in Mind in 2019, and points to a trend potentially linked to summertime and holidays rather than COVID-19.

**Figure 1 Number of new referrals received per month between March – September for 2020**

![Graph showing number of referrals per month between March – September for 2020]

**Source of referrals to virtual Pregnancy in Mind stayed the same**

Referrals in 2020 came generally through the same pathways as had been the case with the face-to-face programme. While increased self-referral was mentioned by practitioners within focus groups, the administrative case data recording system requires updating to capture self-referral. Health services including midwives, GPs and other health professionals were the main source of referrals to virtual Pregnancy in Mind, and the remainder came from Social Services (9), third party agencies (1) and others (4). See Table 3 in Appendix 2 for a full breakdown.

**Reason for referral**

Analyses of the case data also revealed that for 4 out of 5 parents (151), concerns about parental mental health difficulties were noted by practitioners at assessment. Concerns about having a child under one were noted for 2 out of 5 parents (77) and concerns about domestic abuse for less than 1 in 20 parents (8). See Table 4 in Appendix 2 for a full breakdown. During this period, practitioners identified safeguarding risks in relation to two parents, and these were managed within the team and did not require onward referral to statutory health or social care agencies. In 2019, the pre-COVID year when parents had greater access to support on the ground, and were not grappling with COVID-19, proportionately fewer
concerns related to parental mental health difficulties, parental stress and domestic abuse, and proportionately more related to parenting.

Practitioners across all six teams also identified the COVID context as contributing to parental anxiety. This created a need for support in the perinatal period, particularly as other sources of professional support declined.

“I guess the most common reason now is my anxiety increased because of COVID, that’s basically what everybody is experiencing.” (Practitioner, focus group)

“I think… they have struggled with is going to these appointments with the midwives and how lonely and it makes anxiety worse because they are not allowed to have their partners with them to go to the hospital appointments.” (Team manager, more recently established Pregnancy in Mind location)

New learning on completing assessment and standardised measures in a virtual context

Virtual assessment of need: adapting to a new way of working

As with the face-to-face programme, the holistic assessment of need was identified as a critical element of virtual Pregnancy in Mind, providing practitioners and parents with the opportunity to get to know each other and begin building a relationship. Moreover, it helped practitioners to understand the wider context surrounding parents’ engagement with the programme so that they were able to tailor delivery to meet parents’ specific needs, through the group work sessions and weekly one-to-one wellbeing check.

For the majority of practitioners, completing assessments virtually was considered a new way of working with inherent challenges. Rather than conducting the assessment over one or two visits to the parent’s home as had been the case with face-to-face Pregnancy in Mind, practitioners and parents were now presented with the option of completing it over the telephone or videoconferencing app. Most usually, parents opted for the telephone. While this was thought to free up parents to chat in a less inhibited way, it impacted the information available to practitioners.

“You haven’t got that... you’re not seeing the person in their own environment. You are not able to observe the person in the same way because some people are choosing to do the assessments over the phone rather than video link.” (Team manager, older established)

“I think what I have noticed missing with the last group that I did … when you do the assessment it’s so much easier face-to-face because you are picking up more on those kind of facial expressions and cues and body language and interactions and things. It’s a bit more difficult doing it virtually. Other than that, I think it’s been going well in my opinion.”

Practitioner, focus group
Not all practitioners viewed this as a challenge and no impact on the quality of assessment had been noted.

“On that initial assessment ... I'll complete an initial call with the service user. I'd say it's not that different really in terms of when we were doing it face-to-face that's how I feel in terms of the process is still the same. We would still do that initial visit. It's just over the phone this time. So, I do the assessment, look at their support needs and everything that's within that assessment.” (Practitioner, focus group)

“I suppose you might miss some things about going into somebody's home. The team haven't raised that but I suppose you do pick a lot up potentially. But people might also feel more able to give you more information doing it on phone ... Yes, less inhibited, I think. It hasn't been raised as a particular issue by any of the team and I haven't noticed the difference in the assessments I'm reading. I'm not reading them thinking there's loads of gaps, they read fairly consistently.” (Team manager, older established Pregnancy in Mind location)

Completing measures and managing risk: effectively transferring practitioner expertise and skills to a virtual context

The PHQ-9 and GAD-7 standardised measures of depression and anxiety were also completed virtually during the assessment and later within the weekly one-to-one wellbeing checks. Generally, these were emailed in advance so that parents had time to become familiar with what was being asked.

Teams were challenged by the logistics of doing so virtually to ensure completion and return, and careful management of any risk indicated in parents’ responses, particularly in relation to self-harm. The majority completed these measures as fillable pdf forms with parents, virtually but in real time, to discuss responses and manage risk.

“We had a conversation about if we email those forms out and we ask them to be emailed back, what happens if they come in on a weekend and they have marked the self-harm question? Or they come in on a Friday afternoon last thing and we can't get hold of that person. We can't interrogate what they mean by when they've ticked the self-harm question. We just felt that it had to be done in the moment really.”

Team manager, older established Pregnancy in Mind location

Managers acknowledged the challenges felt by practitioners delivering virtual Pregnancy in Mind particularly around completing measures virtually and managing risk. It was recognised that, while delivering the programme virtually was a new way of working for practitioners, the analysis of available data shows that they were able to transfer their expertise and skills across to the virtual context, to manage risk.
“There was an anxiety about the PHQ and GAD which was interesting. We had practitioners who ... “I don’t think we should be asking this over the phone, it feels too intrusive over the phone”. We had lots of conversations about that and we sort of normalised in that well. IAPT constantly use, you know that’s how they triage, that’s how they use PHQ and GAD7 and they use that on the phone all the time. Again, sort of looking at what assumptions are we making about people, are you assuming that someone is going to find that difficult but actually our own anxiety about using it might be the problem. We sort of got past that. Interesting how this is almost initial deskilling for people because it is a different medium.” (Team manager, older established Pregnancy in Mind location)

“Yes, I think practitioners are very good at dealing ... this is a completely different experience with practitioners. What they have talked about ... that we haven’t had it much with Pregnancy in Mind as with other services, where somebody has become distressed in the session and feeling a little bit like they can’t really do anything ... you know. They would normally sit close to that person, etc. It is slightly different. In terms of self-harm, that’s no different than face-to-face, it’s an open conversation. It’s a confident open conversation about ... we have had one recently where the practitioner had to say ... have you got any plans etc and having a very honest conversation with that person to assess that situation.” (Team manager, older established Pregnancy in Mind location)

Assessing how or whether assessments should be conducted virtually did not form part of the original evaluation design, and further research would be needed to understand this.

**Key enablers associated with delivering virtual Pregnancy in Mind**

**Local delivery context: pathways, demand and existing provision**

The existence and leveraging of established referral pathways and a network of awareness and support surrounding the face-to-face Pregnancy in Mind programme locally, promoted referrals and helped get the virtual group work programme up and running in some locations. See Table 3 in Appendix 2 for full detail on referral patterns by team location. For example, Team 5 have been delivering Pregnancy in Mind for a number of years and had experienced a steady volume of referrals prior to COVID-19 and a well-established referral pathway with local midwifery colleagues. One of the teams was co-located in the same building while another had a strong relationship with the regional hospital Midwifery Safeguarding Lead. Other teams, relatively new to delivering Pregnancy in Mind, such as Team 3, struggled to establish referral pathways. See Table 2 in Appendix 2 for full detail on team location and delivery context.
However, some managers also suggested that the development and delivery of specialist perinatal mental health community care, in line with strategic priorities and funding (e.g., NHS Long Term Plan), is impacting demand and referrals for preventative programmes such as Pregnancy in Mind in some local areas.

“In [location], in terms of maternity mental health services and [location] were implementing a lot of their own services that are quite similar. When that was implemented, we have seen a big decline in our referrals ... We have just really struggled to get them going like they were before that.”

Practitioner, focus group

Redeployment of midwives to the frontline during COVID-19 was also noted as impacting referrals locally.

“... I attend a perinatal strategy meeting every quarter and when I attended the other week they were saying that obviously there is a lot of movement at the moment so people who were dispersed into different roles and now being brought back. So there is a lot of movement within midwifery and health visiting. There is a little bit of chaos ... that’s probably the wrong word but what we find is when people are moving around in midwifery, the referrals do dip.” (Team manager, older established Pregnancy in Mind location)

**Local team context: team stability, support and readiness**

A range of contextual factors surrounding the delivery team including team stability and support provided to the team and by peers within the team, also impacted on their success in getting the virtual group work off the ground. This included the enjoyment teams reported deriving from delivering the programme and their commitment to it.

It appears the two teams who experienced greater difficulty in establishing a virtual group were challenged and hampered by pre-existing issues not specifically related to the virtual programme. These included ongoing change and instability within one team experiencing successive changes in management and working at reduced capacity due to sickness absence, and one team delivering in a locality where perinatal mental health services were being restructured and developed following allocation of significant government funding. This team continued to experience challenges with the volume of referrals received.

Findings from practitioner and manager interviews and focus groups suggest these two teams were in a different stage of readiness to establish the virtual programme. This lower level of readiness impeded their ability to engage with, and draw on learning and support, provided through joint meetings between practitioners and development team colleagues, attended by all teams. These meetings provided peer support, as well as the critical space to identify and draw key learning from the early practice response to COVID-19 and shape the virtual Pregnancy in Mind programme rolled out in June to ensure consistent practice across all teams.
Co-delivering virtual Pregnancy in Mind provided important opportunities to work closely with colleagues in planning and debriefing, helped mitigate the isolation many practitioners felt with the COVID-necessitated move to working from home and not meeting colleagues face-to-face. Planning and creating opportunities, both formal (online videoconferencing training; peer support sessions) and informal (virtual coffee breaks) to provide peer support to colleagues within teams helped practitioners adapt to working from home and to develop the technological skills required to deliver Pregnancy in Mind using videoconferencing apps.

**Design of the Pregnancy in Mind programme: flexibility to respond to individual need**

Virtual Pregnancy in Mind is an adaptation of the Pregnancy in Mind programme. The delivery format and model have been adapted for virtual and digital delivery. The virtual adaptation, while premised on the six core themes of Pregnancy in Mind and the toolkit of activities, provides flexibility that was consistently identified by practitioners as important for delivering virtually.

“We’re trying to look at the core components. I mean the beauty of Pregnancy in Mind all along has been that it’s a toolbox, it’s not a manualised programme. It is supposed to adapt to the audience it is being delivered to. If you have somebody whose anxiety is overriding everything else and CBT is the thing they’re really connecting with then practitioners will do more of that. We have parents who have come through and find mindfulness absolutely fantastic and that’s what they want to so you’d adapt it accordingly ... We might have other women who come or the parents who come and it’s the connection with baby that seems to be the issue. Did they feel connected to the baby so we might introduce activities that are more around connecting with the baby. You know, it is that adaptability of the programme that is its strength really.”

Team manager, older established Pregnancy in Mind location

This flexibility enabled teams to work individually with parents if their anxiety or preferences presented a barrier to joining a group, or if the volume of referrals was insufficient to form a group. The one-to-one telephone-based wellbeing checks were very positively viewed by practitioners and considered critical to establishing a strong practitioner-parent relationship and providing an opportunity to tailor the programme to parents’ specific needs not always addressed within the group work.

“A lot of people find the weekly check in...so that “somebody is thinking about me and somebody is listening”, that seems to be working really well and meeting a demand as well.” (Team manager, more recently established Pregnancy in Mind location)
Key challenges associated with delivering virtual Pregnancy in Mind

Practitioner anxiety and uncertainty around technology

The introduction of COVID-19 restrictions meant a rapid move to working virtually, which resulted in some practitioners facing a steep learning curve in using technology.

“I think my struggle was really getting my head around how to use [videoconferencing apps] and all the technology really and I’m still not brilliant at all of these things ... I have never even downloaded on my own personal stuff before so knew nothing about it at all.”

(Practitioner, focus group)

They also reported anxiety about adapting their sessions for virtual delivery – how they would present virtually and use resources. Manager and practitioner accounts shared in interviews and focus groups suggests some anxiety arising from adapting to changing and new ways of working.

“There is an anxiety in delivering virtually. Interestingly, now that we are looking at face-to-face again, there is an anxiety about face-to-face and practitioners will say “we have had some emergency face-to-face” and practitioners will say they were feeling really anxious about doing that, almost feeling a little bit deskilled. But once they have done the session they are feeling fine again.”

(Team manager, older established Pregnancy in Mind location)

Technology as a barrier for service users

Practitioners were aware that virtual delivery caused additional anxiety for some parents and could present a barrier to engagement.

“Turning the camera on is sort of stopping people wanting to do the group, talking to people online, maybe not knowing how to use the [videoconferencing app] or whatever.”

(Practitioner, focus group)

“We had one parent who was only able to access on their phone and was sort of thinking about the cost of the data so we were thinking about that we could make the payment to support them so they can access data so that they can access our support. I suppose it’s about trying to be creative and not see it as a barrier.”

(Team manager, older established Pregnancy in Mind location)

Specific technical problems

Virtual delivery presented a challenge for practitioners in coping with glitches in the technology which could hinder communication, whilst also trying to read people’s body language and unspoken signals without being face-to-face.

“It can be really hard reading a group when your screen keeps freezing or somebody disappears from the screen as they are saying something and then ... you know when you’re in a room you can pick up cues very easily.”

(Practitioner, focus group)
Programme acceptability: practitioners’ responses, perceived benefits and concerns

Overall acceptability to practitioners

Overall, practitioners running the virtual group work sessions showed strong support for either a virtual programme running alongside a face-to-face programme, or a hybrid programme combining some face-to-face delivery with virtual delivery, building relationships with practitioners and peers at a pace that best suited anxious parents.

“Really-really-really positive. Some of the feedback we have had has been phenomenal really. I think it offers an intensity that perhaps you don’t get in face-to-face group work…”

Team manager, more recently established Pregnancy in Mind location

There was acknowledgement that COVID-19 necessitated practitioners going through a rapid process of change in moving to virtual delivery, but that they have adapted.

“I know that because actually the people that I support and the people that I supervise are loving it but in the background, they are kind of not happy with the model that they are having to now deliver, but they are finding the best within it … I actually know they are enjoying the appointments that they have with the people they are supporting and they are seeing that it is working.” (Team manager, older established Pregnancy in Mind location)

Many practitioners reported being surprised that the virtual model had worked so well and shared practice examples of reducing anxiety and depression outcome scores and positive feedback from parents, who welcomed access to the programme during COVID-19, as well as a positive response from midwives.

“I’ve got to say the Pregnancy in Mind service that people have received has seen such great results in terms of bringing down people’s wellbeing scores, we are really kind of seeing the reduction.” (Team manager, older established Pregnancy in Mind location)

Improved geographical reach

Increased geographical reach was a key part of the virtual programme’s acceptability. Three teams reported extending their geographical reach through virtual delivery, enabling parents, who might otherwise need to travel a significant distance on public transport, to access the service.

“Women would come but then they would find it too much to get onto buses to the venue. People being able to tune in without having to travel is a huge advantage.”

(Team manager, more recently established Pregnancy in Mind location)

9 Acceptability is defined as a multi-faceted construct that reflects the extent to which people delivering or receiving a programme or intervention consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to it (Sekhon et al., 2017).
Two Pregnancy in Mind teams extended their geographical reach through working in new ways with their local midwifery services.

“So quite early on, around about April time we had discussions with the NHS [for the wider locality] because they were always keen on us providing Pregnancy in Mind, but we could never ever find a venue. We engaged with them, we did information sharing with the midwives in the [teams covering different areas] virtually and from that we have been able to extend our reach to [the wider locality].” (Team manager, older established Pregnancy in Mind location)

Another Pregnancy in Mind team extended their geographical reach beyond their own locality through collaboration with another NSPCC centre that did not deliver Pregnancy in Mind.

“They have been getting referrals from local authorities for [other NSPCC services] and we have been taking those referrals. I think that the biggest advantage of virtual is that actually, we could work with a group [miles away from us], it wouldn’t matter. [The other NSPCC centre] has been like the broker, we have got a working agreement with [them] about what the process will be. It’s working well.” (Team manager, older established Pregnancy in Mind location)

**Potential to reach anxious parents**

Practitioners across two locations noted that virtual delivery could reduce barriers to access for parents who were particularly anxious. Delivering the programme virtually allowed the relationship to be built at a pace that suited the parents. Practitioners considered that some parents were more open and honest in conversation than they may have been in a face-to-face group.

“It gave many of them a lot of … they felt more confident in just talking because they couldn’t see this person, this person couldn’t see them like they don’t care, they can just say it all. That’s what I felt for some of them and they were able to really speak a lot.”

Practitioner, interview

“I just think it’s more accessible and I also think it’s probably less anxiety-provoking ..., talking to somebody on the phone if that’s all you can face and you have been told that’s ok and you can still get some support it’s a completely different board game. I would say people do need quite a lot of hand-holding because for women with anxieties it’s really daunting. We have got used to working like this, it doesn’t mean everybody else has and I also think there is something about the anonymity of having a one-to-one in this way. Some people only want phone and then they move to video. So we really have to do it incrementally.” (Team manager, older established Pregnancy in Mind location)
Reduced visibility of “bumps and babies”

Working virtually using videoconferencing rather than being in the same room made it more difficult for practitioners to see and share the physical changes happening to mothers during pregnancy. Many practitioners shared a preference for face-to-face interaction supporting the building of relationships with and between parents, and its value in facilitating observation of the developing bond between parent and baby.

“I think... that in person there is that sort of like more in-tune touch with everybody, you can pick up on body language etc. Sometimes it has got a straining on your eyes trying to keep a check on everybody on the screen and see how they are sort of reacting to the information.”

Practitioner, focus group

Peer-to-peer relationships

Practitioners in some locations noted that it could be difficult using virtual and digital delivery to encourage parents to form peer-to-peer relationships within online groups, although this seemed to be on a case-by-case basis and dependent on the personality of the parents.

“I think one of the other advantages is that we have been really surprised about the [messaging] group, that real social element and that sharing of information. However, it’s quite interesting that one of the other groups haven’t really engaged with that so I wonder whether it’s down to individuals and how they feel about technology and engaging in that way.” (Team manager, more recently established Pregnancy in Mind location)

Despite practitioners mentioning the difficulties of forming peer-to-peer relationships within groups, there were some examples of this relationship-building being successful.

“We have had updates where groups have carried on after the Pregnancy in Mind group has ended via [messaging] or things like that, and there’s plans for people to meet up with their babies.” (Team manager, older established Pregnancy in Mind location)

Engaging fathers and increasing diversity: no change

While virtual delivery was viewed as a potential opportunity to bring more fathers into the programme, this potential was not realised. Teams with established practice in engaging fathers continued to do so.

“We tended to have a high intake of dads anyway who attended but I think this last group, yes all the dads have come and attended. Yes, it is easier for them and especially if they are at home with their children, they might sort of go off to see to their children but they come back to the group. Whereas otherwise, obviously when it’s face-to-face it’s more about finding that babysitter.” (Practitioner, focus group)

Practitioners’ views on why fathers may or may not engage with the virtual programme included work, perceptions that Pregnancy in Mind is a programme for mothers, and that during COVID-19 mothers may have been very glad to attend alone given the little time they
had to themselves during lockdown. Moreover, practitioners noted that engaging fathers changed the group dynamic and, in a way, that was not always helpful to some mothers.

Similarly, the ongoing challenge around engaging parents from different communities was also acknowledged. Teams continue to engage in development in this area.10

“As regards to [ethnic minority communities], no we still have not been able to reach these communities. We are doing a piece of work now to specifically reach out to those communities. I think it’s about us, not for Pregnancy in Mind specifically but as a service centre.”

Practitioner, focus group

Mental health outcomes for parents

Initial mental health support needs of parents

Analyses of self-reported anxiety and depression data collated using the PHQ-9 and GAD-7 measures from 88 parents, during the holistic assessment of need that took place after referral and before virtual Pregnancy in Mind was delivered, indicated that the average parent was experiencing mild depression (PHQ-9 score 8.73) and mild, bordering on moderate anxiety (GAD-7 score 9.87). The mean depression score was below the clinical PHQ-9 cut off for depression (8.73 < 10) while the mean anxiety score was above the clinical GAD-7 cut off for anxiety (9.87 > 8) (Gyani et al., 2013). The analyses also suggest variation in parents’ experiences of depression and anxiety. Self-reported depression (range of 1.11 to 22.13) and anxiety (range of 2.32 to 19.44) scores both ranged from none to severe. Overall, approximately two out of three parents’ scores for depression (62%) and anxiety (67%) were classified as either mild (38% depression, 53% anxiety) or moderate (24% depression, 24% anxiety). One in 4 parents scores for depression (25%) and approximately 1 in 20 for anxiety (6%) were classified as none. See Tables 1 and 2 in Appendix 3 for a full breakdown. This analysis indicates that the parents who accessed virtual Pregnancy in Mind were appropriately referred to this preventative programme designed to provide perinatal support for those experiencing, or at risk of experiencing mild to moderate mental health issues.

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10 An improvement project using rapid cycle testing to examine approaches to improving areas identified in the process evaluation (Thomas et al., 2020). These areas include increasing referrals, the diversity of users, and the engagement of dads/partners, and reducing attrition within the programme.
Changes in parents’ self-reported anxiety and depression

Parents who engaged with virtual Pregnancy in Mind experienced an improvement in reported depression and anxiety, as measured by a reduction in PHQ-9 and GAD-7 scores over the six sessions of the programme, typically accessed over nine weeks.11 This reduction in scores was statistically significant.12 Figures 2 and 3 present the change in parental depression and anxiety following virtual Pregnancy in Mind. Based on their scores at initial assessment, parents have been categorised into groups in line with the scoring bands for GAD-7 and PHQ-9. These are represented by the coloured lines in Figures 2-4.

The average parent experienced a reduction of -4.38 in their PHQ-9 scores13 over the six sessions of the programme, an average improvement of -0.73 per session. This result is statistically significant. The analysis also showed that almost one in three parents (32%) achieved at least this level of change. However, from a clinical perspective, this reduction is below the 5.20 that is indicative of reliable recovery (Gyani et al., 2013). With regard to anxiety, the average parent experienced a reduction of -5.34 in their GAD-7 scores14 over the six sessions of the programme. This was an average improvement of -0.89 per session. The analysis confirms that again, almost one in three parents (31%) achieved at least this level of change. This result is statistically significant and clinically significant. A reduction greater than 3.53 is considered indicative of reliable recovery (Gyani et al., 2013). The results also show that two out of three parents (66%) achieved this level of clinically significant change in their anxiety scores.

As Figures 2 and 3 show, parents who reported higher depression and anxiety scores during their holistic assessment of need experienced the greatest rate of improvement, as indicated by reduction in their GAD-7 and PHQ-9 scores over the six sessions. These results were statistically significant.15

The analysis also found that the personal characteristics of age, ethnicity, having a child under one and reporting no other presenting concerns did not predict levels of reported depression or anxiety at holistic assessment of need, or the rate of improvement experienced over the virtual Pregnancy in Mind programme. The same was found for key service characteristics. Neither receiving the programme from a team in a longer-established Pregnancy in Mind location, nor using videoconferencing in delivery, made a difference to improvement in reported depression and anxiety. Similar improvement was experienced by parents irrespective of these personal or service characteristics. See Tables 3 and 4 in Appendix 3 for full details.

11 The analysis, using a latent growth modelling approach, tested the fit of a theory driven model of change to the PHQ-9 and GAD-7 scores reported by parents over six sessions of virtual Pregnancy in Mind. Figures 2–4 show the average initial score on these measures at assessment, and the average rate of change over the six sessions experienced by the average parent. Parents typically accessed these sessions over 9 weeks and it is expected that scores for individual parents would fluctuate up and down during that time.
12 Depression latent growth model fit indices (chi-square= 14.38, df=13, p = .348; RMSEA = .035, 90% CI .00 - 0.11, p = .544; CFI = .99; TLI = .99). Anxiety latent growth model fit indices (chi-square= 13.609, df=13, p= .402; RMSEA=. 023, 90% CI .00 - 0.111, p= .598; CFI = .99; TLI = .99)
13 statistically significant; p<0.001
14 statistically significant; p<0.001
15 Reduction in GAD-7 scores statistically significant negative correlation coefficient of r= -.827 p<0.001. Reduction in PHQ-9 scores statistically significant negative correlation coefficient of r= -.614 p<0.001
Figure 2 Change in parental depression over the virtual Pregnancy in Mind programme, typically accessed over 9 weeks, organised by scoring categories of PHQ-9

![Figure 2](image)

Coloured lines representing change experienced over the virtual Pregnancy in Mind programme are based on scores at assessment (1) through 6 programme sessions, typically accessed over 9 weeks.

- Green line: 0-4 none
- Orange line: 5-9 mild
- Blue line: 10-14 moderate
- Pink line: 15-19 moderately severe
- Red line: 20-27 severe

$n=87$

Figure 3 Change in parental anxiety over the virtual Pregnancy in Mind programme, typically accessed over 9 weeks, organised by scoring categories of GAD-7

![Figure 3](image)

Coloured lines representing change experienced over the virtual Pregnancy in Mind programme are based on scores at assessment (1) through 6 programme sessions, typically accessed over 9 weeks.

- Green line: 0-4 none
- Orange line: 5-9 mild
- Blue line: 10-14 moderate
- Purple line: 15-21 severe

$n=87$
**Parents who received early virtual response compared to co-ordinated virtual offer.**

Parents who received the co-ordinated virtual model from mid-June 2020 reported a greater rate of improvement over the six sessions than parents who received the early virtual programme at the beginning of lockdown. The average difference in rate of improvement was -0.75 and was statistically significant.\(^{16}\) The analysis also showed these parents reported a higher level of depression at their holistic assessment of need. The average difference was 3.6 on the PHQ-9 and was statistically significant. The significant effect size is moderate (0.33) indicating that it would be expected that 33% of parents who have received the co-ordinated virtual programme would achieve a greater reduction in PHQ scores (improvement) than the average parent who received the early virtual programme.

These results suggest that pooling early learning gained about using virtual and digital methods to deliver Pregnancy in Mind in early lockdown yielded a co-ordinated virtual offer that was associated with a greater improvement in depression outcomes. Also, teams’ promotion of this co-ordinated virtual model to referral partners and agencies from June, may have resulted in more targeted referrals to the programme.

**Figure 4 Change in parental depression experienced by parents who accessed the co-ordinated virtual model compared to the virtual programme in early lockdown**

Coloured lines representing change experienced over the virtual Pregnancy in Mind programme are based on scores at assessment (1) through 6 programme sessions, typically accessed over 9 weeks.

\(^{16}\) p<0.001
Discussion and Conclusions

Virtual Pregnancy in Mind is a digital version of the the face-to-face Pregnancy in Mind programme with six core themes and a toolbox of activities that provide flexibility to enable the programme to be tailored to meet the needs of parents experiencing, or at risk of experiencing anxiety or depression in the perinatal period.

This programme was delivered to 186 parents between 23 March and 30 September 2020, during the COVID-19 pandemic, primarily as a group work programme using videoconferencing apps.

The local delivery and team context proved critical to enabling delivery of virtual Pregnancy in Mind; this included leveraging established referral pathways and a network of support surrounding face-to-face Pregnancy in Mind to get the virtual programme off the ground in local areas. Teams less successful in this regard were hampered by contextual issues unrelated to virtual delivery or COVID-19. These included issues around change, stability and capacity within the delivery team, as well as the strategic development of perinatal mental health services in their local area, which impacted referral to virtual Pregnancy in Mind.

Scaling of virtual Pregnancy in Mind should involve an assessment of the delivery team and local context to establish upfront any existing contextual or referral challenges and to mitigate these before Pregnancy in Mind is implemented. This could be identified through the use of a site readiness assessment as these issues will not be resolved by rolling out a virtual programme alone. Programme design around core themes and activities provided flexibility that was also identified as a key enabler, and a strength that should support efforts to scale this programme in new contexts and for different parents. The introduction of, and the flexibility of the weekly one-to-one wellbeing checks was identified as very important to supporting parental engagement and preventing attrition.

Key benefits were identified in relation to extending geographical reach and developing relationships at a pace that suited anxious parents. This programme has potential to remove barriers to access for some groups of parents who may otherwise not be able to engage in a face-to-face programme (Witcombe-Hayes et al., 2018). Development work is ongoing to address diversity and inclusion, particularly among parents from Black and Asian communities where mothers are known to be at greater risk of poorer perinatal outcomes (Knight et al, 2021). Further research may be required to support this.

Training is needed for practitioners to develop confidence and skills in delivering Pregnancy in Mind virtually. User friendly technology solutions will help address practitioner and parent anxiety, and technology glitches, helping to manage this potential barrier to engagement for some parents.
Results from analyses of the routine outcome measures data indicate that virtual Pregnancy in Mind is associated with improvements in mild to moderate depression and anxiety among parents. These improvements are statistically and clinically significant for anxiety, and statistically significant for depression outcomes. Statistically significant improvements in depression and anxiety have also been reported in the process evaluation of the face-to-face Pregnancy in Mind programme (Thomas et al., 2020), and in international research reviews (Ashford et al., 2016; van den Heuvel et al., 2018; Hussain-Shamsay et al., 2020). Improved accuracy and completeness of recording will enable routinely collected administrative case data to provide learning to inform development and scaling of services and programmes.

**Conclusion**

This process evaluation adds to the developing body of evidence concerning Pregnancy in Mind (Thomas et al., 2020) and virtual perinatal mental health support interventions (Danaher et al., 2012; Ashford et al., 2016; Shorey and Ng, 2019; Daly et al., 2020). Virtual Pregnancy in Mind can help address the gap in provision for parents in the perinatal period experiencing, or at risk of experiencing mild or moderate anxiety and depression. This is significant at a time of increasing awareness of the importance of perinatal mental health (Cunningham et al., 2018; Papworth et al., 2021), and the availability of funding to provide appropriate support for all those who need it (NHS, 2019a, 2019b; Department of Health, 2021).
References


Appendix 1: Pregnancy in Mind theory of change

**Programme activities**
- 8 weekly group work sessions
- Toolbox of activities to choose from for sessions with content on:
  - mindfulness
  - active relaxation
  - psychoeducation
  - interpersonal relationships and communication
  - awareness-raising of foetal development
  - signposting to postnatal services

**Intermediate outcomes**
- More time spent (and increased skills in) practicing mindfulness
- More time spent (and increased skills in) practicing active relaxation
- Understanding and use of strategies to support partner
- More time spent thinking about the developing foetus
- Increased use of signposted postnatal services
- Increased peer social support through connections with other group members

**Longer-term outcomes**
- Reduced anxiety and depression in antenatal period
- Improved partner relationship
- Improved parent-foetal attachment

**Ultimate goal:**
Positive and nurturing parent-infant relationship

**Moderators**
Attendance, levels of anxiety and depression at start of intervention, partner attendance, attendance of other supporter, levels of social support outside group (family, friends), previous experiences of pregnancy and parenting including child protection processes, previous experiences of being parented
Appendix 2: Additional data on Pregnancy in Mind team locations and participants

Table 1: Service user profile by team location (based on 186 cases who received virtual Pregnancy in Mind between 23 March – 30 September 2020)

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<thead>
<tr>
<th>Team location</th>
<th>Average age</th>
<th>Gender</th>
<th>Sexual orientation</th>
<th>Disability</th>
<th>Ethnicity</th>
<th>Total number of cases with partner sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team location 1 (26 cases)</td>
<td>Age range: 16-43 years old Average age: 31</td>
<td>Female (25) Male (1)</td>
<td>Bi-Sexual (1), Heterosexual/Straight (23) Unknown (2)</td>
<td>Yes (2), No (22), Unknown (2)</td>
<td>Any other White Background (7), Mixed/multiple ethnic group: Any Other Mixed or Multiple Background (1), Unknown (1), White: English, Welsh, Scottish, Northern Irish or British (17)</td>
<td>2</td>
</tr>
<tr>
<td>Team location 2 (22 cases)</td>
<td>Age range: 19-38 years old Average age: 28</td>
<td>Female (22)</td>
<td>Gay Woman (1), Heterosexual/Straight (11), Practice decision not to ask (6), Unknown (2), Unsure (2)</td>
<td>Yes (2), No (17), Unknown (3)</td>
<td>Any other White Background (1), Asian/Asian British: Indian (1), Black/Black British/Caribbean/African: African (1), Mixed/multiple ethnic group: White and Black Caribbean (1), White: English, Welsh, Scottish, Northern Irish or British (18)</td>
<td>1</td>
</tr>
<tr>
<td>Team location 3 (22 cases)</td>
<td>Age range: 19 – 38 years old Average age: 28 1 missing data</td>
<td>Female (21) Unknown (1)</td>
<td>Heterosexual/Straight (10), Practice decision not to ask (3), Unknown (9)</td>
<td>Yes (1) No (7), Not Asked (1), Unknown (13)</td>
<td>Any other White Background (1), British/Caribbean/African: African (1), Mixed/multiple ethnic group: Any Other Mixed or Multiple Background (1), Unknown (7), White: English, Welsh, Scottish, Northern Irish or British (12)</td>
<td>0</td>
</tr>
</tbody>
</table>
## Process evaluation of Virtual Pregnancy in Mind during the COVID-19 pandemic

<table>
<thead>
<tr>
<th>Team location 4 (40 cases)</th>
<th>Average age</th>
<th>Gender</th>
<th>Sexual orientation</th>
<th>Disability</th>
<th>Ethnicity</th>
<th>Total number of cases with partner sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range: 18 – 37 years old</td>
<td>Female (37), Male (2), unknown (1)</td>
<td>Bi-Sexual (2), Heterosexual/Straight (32), Other (1), Unknown (5)</td>
<td>Yes (5), No (30), Not asked (1), Unknown (4)</td>
<td>Any other Ethnic Group (2), Any other White Background (2), British/Caribbean/African: African (1), White: English, Welsh, Scottish, Northern Irish or British (35)</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Team location 5 (48 cases)</th>
<th>Average age</th>
<th>Gender</th>
<th>Sexual orientation</th>
<th>Disability</th>
<th>Ethnicity</th>
<th>Total number of cases with partner sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range: 19 – 41 years old</td>
<td>Female (47), Unknown (1)</td>
<td>Heterosexual/Straight (39), Practice decision not to ask (1), Unknown (6), unsure (2)</td>
<td>Yes (6), No (37), Unknown (5)</td>
<td>Any other Ethnic Background (1), Any other White Background (1), British/Caribbean/African: African (1), Mixed/multiple ethnic group: White and Black African (1), Mixed/multiple ethnic group: White and Black Caribbean (1), Other ethnic group: Arab (1), Unknown (1), White: English, Welsh, Scottish, Northern Irish or British (41)</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Team location 6 (28 cases)</th>
<th>Average age</th>
<th>Gender</th>
<th>Sexual orientation</th>
<th>Disability</th>
<th>Ethnicity</th>
<th>Total number of cases with partner sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range: 18 – 40 years old</td>
<td>Female (28)</td>
<td>Bi-Sexual (1), Heterosexual/Straight (23), Unknown (4)</td>
<td>Yes (6), No (17), Unknown (5)</td>
<td>Any other White Background (1), British/Caribbean/African: African (1), Unknown (3), White: English, Welsh, Scottish, Northern Irish or British (23)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
### Table 2: Team location context

<table>
<thead>
<tr>
<th>Pregnancy in Mind Team location</th>
<th>Level of deprivation (Index of multiple deprivation 2019, England(^{17}), Income Deprivation by Local Authority 2019, Wales(^{18}))</th>
<th>Ethnicity population data (Census 2011)</th>
<th>Total number of years team delivering Pregnancy in Mind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team location 1</td>
<td>No data available</td>
<td>White 97.7%, Asian 1.3%, Black, 0.4%, Mixed 0.7%</td>
<td>1 year, 10 months (June 2019)</td>
</tr>
<tr>
<td>Team location 2</td>
<td>43 and 12</td>
<td>Area 1: White 95.1%, Asian or Asian British 7.8%, Black, African, Caribbean or Black British 3.4%, Other ethnic groups 1.1% Area 2: White 67.4%, Asian or Asian British 26.8%, Black, African, Caribbean or Black British 1.8%, other ethnic group 1.5%</td>
<td>6 years, 3 months (January 2015)</td>
</tr>
<tr>
<td>Team location 3</td>
<td>Area 1: 17% of population living in income deprivation, Area 2: 16% of population living in income deprivation</td>
<td>Area 1: White 94.1%, Black and Minority Ethnic 5.9%, mixed 0.8% Area 2: White 84.8%, Black and Minority Ethnic 15.2%, Mixed 2.8%</td>
<td>2 years, 9 months (July 2018)</td>
</tr>
<tr>
<td>Team location 4</td>
<td>98</td>
<td>White 89.8%, Asian, Asian British 6.4%, Black, Africa, Caribbean or Black British 1.4%, Mixed or multiple ethnic groups 2%, other ethnic groups 0.4%</td>
<td>5 years, 5 months (November 2015)</td>
</tr>
<tr>
<td>Team location 5</td>
<td>133 (based on county)</td>
<td>White 96.6%, Asian or Asian British 1.3%, Black, African, Caribbean or Black British 0.7%, other ethnic group 0.2%</td>
<td>5 years, 3 months (January 2016)</td>
</tr>
<tr>
<td>Team location 6</td>
<td>140</td>
<td>White 94.3%, Asian or Asian British 3.4%, Black, African, Caribbean or Black British 0.6%, Other ethnic groups 0.5%</td>
<td>2 years, 8 months (August 2018)</td>
</tr>
</tbody>
</table>

\(^{17}\) https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019 (The ranking given based on Index of Multiple Deprivation average score for 151 upper tier local authority districts. A ranking of 1 being the most deprived district and 151 being the least deprived).

Table 3: Referral pattern by team location (based on 192 new referrals received from March – September 2020)

<table>
<thead>
<tr>
<th>Pregnancy in Mind Team location</th>
<th>Number of new referrals between March – September 2020</th>
<th>Source of referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team location 1</td>
<td>25</td>
<td>Health (9), Social services (2), Third party agency (8) Missing (6)</td>
</tr>
<tr>
<td>Team location 2</td>
<td>24</td>
<td>Health (18), Other (1), Missing (5)</td>
</tr>
<tr>
<td>Team location 3</td>
<td>23</td>
<td>Health (1), Missing (22)</td>
</tr>
<tr>
<td>Team location 4</td>
<td>34</td>
<td>Health (29), Other (1), Missing (4)</td>
</tr>
<tr>
<td>Team location 5</td>
<td>50</td>
<td>Health (47), Other (2), Third party agency (1)</td>
</tr>
<tr>
<td>Team location 6</td>
<td>36</td>
<td>Health (28), Social services (6), Missing (2)</td>
</tr>
</tbody>
</table>

Table 4: Presenting concerns per team location (based on 186 cases who received virtual Pregnancy in Mind between 23 March – 30 September 2020)

<table>
<thead>
<tr>
<th>Pregnancy in Mind Team location</th>
<th>Domestic abuse</th>
<th>Child under 1</th>
<th>Parental mental health</th>
<th>Parent stress</th>
<th>Parenting</th>
<th>No presenting concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team location 1</td>
<td>0</td>
<td>11</td>
<td>25</td>
<td>8</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Team location 2</td>
<td>0</td>
<td>2</td>
<td>13</td>
<td>2</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Team location 3</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>14</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Team location 4</td>
<td>3</td>
<td>21</td>
<td>33</td>
<td>7</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Team location 5</td>
<td>4</td>
<td>24</td>
<td>40</td>
<td>9</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Team location 6</td>
<td>1</td>
<td>19</td>
<td>19</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>
Table 5: Service user engagement with technology per team location (based on 186 cases who received virtual Pregnancy in Mind between 23 March - 30 September 2020)

<table>
<thead>
<tr>
<th>Pregnancy in Mind Team location</th>
<th>Was videoconferencing used?</th>
<th>Type of tech used (not including Microsoft Teams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team location 1</td>
<td>Yes (17), No (7), Missing (2)</td>
<td>Phone call (23), Skype (2), Zoom (12) Other (7), Missing (2)</td>
</tr>
<tr>
<td>Team location 2</td>
<td>Yes (4), No (18)</td>
<td>Phone call (17), Signal (1), Skype (5), Zoom (3) Other (1)</td>
</tr>
<tr>
<td>Team location 3</td>
<td>Yes (14), No (8)</td>
<td>Phone call (21), Zoom (5) Other (2)</td>
</tr>
<tr>
<td>Team location 4</td>
<td>Yes (19), No (17), Missing (4)</td>
<td>Phone call (36), Skype (12), Zoom (17) Other (4)</td>
</tr>
<tr>
<td>Team location 5</td>
<td>Yes (40), No (9)</td>
<td>Phone call (39), Signal (15), Skype (19), Zoom (40), Other (9)</td>
</tr>
<tr>
<td>Team location 6</td>
<td>Yes (21), No (1), Missing (1)</td>
<td>Phone call (21), Skype (9), Zoom (16)</td>
</tr>
</tbody>
</table>
Table 6: Comparative data on parents who consented for their outcome data to be used in evaluating virtual Pregnancy in Mind and other parents who accessed the programme at the same time (based on 186 cases who received virtual Pregnancy in Mind between 23 March – 30 September 2020)

<table>
<thead>
<tr>
<th>Pregnancy in Mind Team location</th>
<th>Average Age</th>
<th>Gender</th>
<th>Sexual orientation</th>
<th>Disability</th>
<th>Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>88 parents who provided consent for standardised measure data</td>
<td>Age range: 18 – 43 years old Mean= 30.76 SD= 5.30</td>
<td>Female (85) Male (3)</td>
<td>Bi-sexual (3), Gay Woman (1), Heterosexual/straight (74), practice decision not to ask (4), unknown (3), unsure (3)</td>
<td>Yes (11) No (70) Unknown (7)</td>
<td>Any other ethnic group (incl. Arab) (2), Asian/Asian British: Indian (1), Black/Black British African (1), Mixed/multiple ethnic group: White and Black African, White and Black Caribbean, other (4), Unknown (2), White: English, Welsh, Scottish, Northern Irish &amp; other (78)</td>
</tr>
<tr>
<td>98 parents who did not provide consent for standardised measure data</td>
<td>Age range: 16 – 41 years old Mean= 28.11 SD= 5.86</td>
<td>Female (95) Unknown (3)</td>
<td>Bi-Sexual (1), Heterosexual/straight (64), Other (1), Practice decision not to ask (6), unknown (25) unsure (1)</td>
<td>Yes (11) No (60) Not asked (2) Unknown (25)</td>
<td>Any other ethnic group (2), Black/Black British African (4), Mixed/multiple ethnic group: White and Black Caribbean (1), Unknown (10), White, English, Welsh, Scottish, Northern Irish &amp; other (81)</td>
</tr>
</tbody>
</table>

Analysis of mean differences across the two groups of parents
- Age - statistically significant differences p<0.001
- Ethnicity - no statistically significant differences $X^2= 2.01$ p=.36
- Has child under one - no statistically significant differences $X^2= 1.85$ p=.39
- No other presenting concerns - no statistically significant differences $X^2= .387$ p=.824
Appendix 3: Additional data on analysis of programme outcomes

Table 1: PHQ outcome measure scoring bands (from sample of 87 cases)

<table>
<thead>
<tr>
<th>PHQ measure band scoring</th>
<th>Total number of parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scored None - 0-4</td>
<td>22</td>
</tr>
<tr>
<td>Scored Mild - 5-9</td>
<td>33</td>
</tr>
<tr>
<td>Scored Moderate - 10-14</td>
<td>21</td>
</tr>
<tr>
<td>Scored Moderately Severe - 15-19</td>
<td>7</td>
</tr>
<tr>
<td>Scored Severe - 20 – 27</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 2: GAD outcome measure scoring bands (from sample of 87 cases)

<table>
<thead>
<tr>
<th>GAD measure band scoring</th>
<th>Total number of parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scored None - 0-4</td>
<td>5</td>
</tr>
<tr>
<td>Scored Mild - 5-9</td>
<td>46</td>
</tr>
<tr>
<td>Scored Moderate - 10-14</td>
<td>21</td>
</tr>
<tr>
<td>Scored Severe - 15-21</td>
<td>14</td>
</tr>
</tbody>
</table>

---

19 While 88 parents provided consent for their PHQ-9 and GAD-7 standardised measures data to be used in the evaluation, 87 parents completed PHQ-9 and 87 completed the GAD-7. 1 parent competed PHQ only and 1 parent completed GAD only.
### Table 3: Personal and service characteristics and PHQ programme outcomes

<table>
<thead>
<tr>
<th>Personal and Service Characteristic</th>
<th>Estimates (95% confidence interval)</th>
<th>P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.581 (-2.588 - 1.426)</td>
<td>0.57</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>0.501 (-2.588 - 3.591)</td>
<td>0.75</td>
</tr>
<tr>
<td>Has a child under 1</td>
<td>-1.211 (-4.001 - 1.579)</td>
<td>0.395</td>
</tr>
<tr>
<td>No presenting concerns</td>
<td>-2.064 (-5.78 - 1.651)</td>
<td>0.276</td>
</tr>
<tr>
<td><strong>Service Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longer established Pregnancy in Mind location</td>
<td>1.199 (-1.238 – 3.636)</td>
<td>0.335</td>
</tr>
<tr>
<td>Videoconferencing used in delivery</td>
<td>0.164 (-3.975- 4.303)</td>
<td>0.938</td>
</tr>
</tbody>
</table>

### Table 4: Personal and service characteristics and GAD programme outcomes

<table>
<thead>
<tr>
<th>Personal and Service Characteristic</th>
<th>Estimates (95% confidence interval)</th>
<th>P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.867 (-2.418– 0.684)</td>
<td>0.273</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-0.754 (-3.527 – 2.019)</td>
<td>0.594</td>
</tr>
<tr>
<td>Child under 1</td>
<td>-0.879 (-3.475 - 1.718)</td>
<td>0.507</td>
</tr>
<tr>
<td>No presenting concerns</td>
<td>-0.357 (-3.283 – 2.569)</td>
<td>0.811</td>
</tr>
<tr>
<td><strong>Service Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longer established Pregnancy in Mind location</td>
<td>1.299 (-1.021 – 3.618)</td>
<td>0.272</td>
</tr>
<tr>
<td>Videoconferencing used in delivery</td>
<td>1.357 (-2.125 – 4.84)</td>
<td>0.445</td>
</tr>
</tbody>
</table>
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