BMJ Open

# Maintaining NHS antenatal support online during Covid-19



| | |
|---|---|
| Journal: | *BMJ Open* |
| Manuscript ID | bmjopen-2020-040649 |
| Article Type: | Original research |
| Date Submitted by the Author: | 19-May-2020 |
| Complete List of Authors: | Chatwin, John; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>Butler, Danielle; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>Jones, Jude; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>James, Laura; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>Choucri, Lesley; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>McCarthy@hee.nhs.uk, Rose; Health Education England |
| Keywords: | QUALITATIVE RESEARCH, Telemedicine < BIOTECHNOLOGY & BIOINFORMATICS, Information technology < BIOTECHNOLOGY & BIOINFORMATICS |
| | |

*I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.*

*The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.*

*Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.*

# Maintaining NHS antenatal support online during Covid-19

**Dr John Chatwin** *Corresponding author
School of Health and Society
Room MS 3.41, Mary Seacole Building
University of Salford,
Salford
M5 4WT

**t:** +44 (0) 7796425035
**f:** +44 (0) 161 295 5526
**e:** j.r.chatwin@salford.ac.uk

**Ms Danielle Butler**
University of Salford
Salford, UK

**Mrs Jude Jones**
NHS / University of Salford
Salford, UK

**Mrs Laura James**
NHS / University of Salford
Salford, UK

**Dr Lesley Choucri**
University of Salford
Salford, UK

**Dr Rose McCarthy**
Health Education England
Manchester, UK



**Key words**
Midwife-mediated social media; communities of practice; covid-19; maternity information-provision.

**Word Count**
4600

**Abstract**

**Objectives**

The Coronavirus pandemic has seen unprecedented restrictions on non-essential healthcare encounters. This has increased the use of internet and online healthcare resources by service users. Pregnant women have always been a group particularly motivated to seek out information online. The objective was to explore how an existing NHS social-media based support intervention adapted when the impact of Covid-19 led to wide ranging changes in normal maternity service provision. We also sought to examine those features of the intervention which were reported by mothers to be most useful as the crisis progressed.

**Setting**

An experimental social media-based maternal support intervention, currently being piloted in 12 NHS Trusts in England.

**Participants**

Pregnant women (n=156) who were using the intervention during the Covid-19 outbreak.

**Intervention**

A short online survey with four closed questions (scale response) and one open-ended free-text question was completed three weeks after the start of the UK lockdown. Descriptive statistics are used to present the closed question data. Thematic analysis was applied to the free-text responses.

**Results**

320 women were using the intervention at the time of the UK lockdown. 156 completed the survey (49% response rate). Participants provided information relating to frequency of intervention use; information access; relative level of antenatal care; ease of contact. 105 (66%) participants completed the open-ended free-text question. Key themes to emerge related to: i) Information provision and verification. ii) Managing and reducing feelings of isolation iii) Intervention specific issues, including crisis adaptations. iv) Impact on routine care.

**Conclusions**

This study demonstrates that although a professionally mediated social-media model of maternity support was already popular with users before Covid-19, it was, and remains, ideally positioned to help midwives and pregnant mothers meet the unprecedented and immediate challenges that arose in antenatal care during the pandemic.

**Strengths and limitations of the study**

- This was a survey-based study focusing on the experiences of pregnant women accessing an online maternity support intervention during the Covid-19 pandemic.
- The intervention was already established before the UK lockdown began.
- A high proportion of women using the intervention responded to the survey.
- The 12 NHS Trusts using the intervention were primarily in the North of England.
- Only women who were already using the online intervention at the time of Covid-19 were sampled, which could have influenced their attitude towards social-media based support, and the issues they chose to report.



**Author contributions**

JJ and LJ designed the survey and collected the data. JC assisted with the survey design, conducted the analysis, and led on writing the paper. DB project-managed the intervention, assisted with the survey design and delivery and co-wrote the paper. LC and RM designed and supervised the intervention. All authors commented on a final draft of the paper

## 1. Background

The Coronavirus pandemic has seen unprecedented restrictions on non-essential healthcare encounters throughout the world. One effect of this has been an exponential increase in the use of online healthcare resources by people seeking routine healthcare advice and support. [1, 2] Well before Covid-19, widespread internet availability had fundamentally changed the way many people accessed health information and engaged with health providers. [3] And while it is widely acknowledged that much healthcare related information available on the internet is of dubious provenance and can be difficult for people to verify, [4] there has always been a drive by qualified healthcare professionals and their organisations to counter this by providing professionally sanctioned healthcare support and information of all kinds online. [5]

Pregnant women have always been particularly motivated to seek out information online, [6, 7] and the popularity of social media-based interventions as a source of information and support for this group has been growing for a number of years. In addition to being able to access significantly more maternity related information through the internet, many pregnant women also now become members of online communities [8] where they can meet other mothers, share experiences, offer each other social and emotional support and ask and answer questions. [9] Social media use by women of roughly childbearing age in the UK is extremely high, with 93% of 16-24-year olds, 88% of 24-34-year olds, and 85% of 35-44-year olds now classing themselves as active users. [10] Groups specifically aimed at pregnant women have similarly become much more common over the past decade, [11] and added to these are any number of privately hosted groups on general social media platforms such as Facebook or Twitter.

In this article, we present a qualitative analysis of feedback collected from a survey of pregnant mothers who were using a midwife-moderated social-media-based support intervention during the early stages of UK lockdown during the Coronavirus outbreak. The intervention, called [Removed for review] * is an online initiative which is currently being piloted in maternity units in 12 NHS Trusts in England. It offers pregnant women the opportunity to join private maternity related online discussion groups, hosted on the Facebook social-media platform. Importantly, groups are private, invitation is by NHS referral only, and moderated by qualified midwives. Individual [Removed for review] groups have a maximum of 20 pregnant mothers and are moderated by two qualified midwives. These midwives, called [Removed for review] work together to verify information shared amongst their group, answer specific queries, signpost to other relevant services and sources, and offer evidence-based maternity related advice. Participating NHS maternity units may have several groups running simultaneously. Two senior midwives and a project manager based at the University of Salford oversee the organisation and running of the intervention and provide training and mentorship the midwife moderators.

A parallel aim of the initiative is to help pregnant mothers develop their own 'virtual' communities of care [12] where they can support each other and share their personal experiences and information, so the role of the moderators is also to closely monitor ongoing interaction (i.e. messages posted by mothers on their group). They are then able to step in to offer confirmation, clarify misunderstandings or correct any inaccurate and misleading information that may be shared. Moderators check their group at least once a day in order to do this. A detailed outline of the intervention model and preliminary evaluation findings are presented elsewhere. [12, 13]

* The full title of the study is: [Removed for review]

## 2. Objective

It is in the context of an established maternity support intervention that was already running when the UK Covid-19 response got underway that we present this analysis. The objective was to explore how the [Removed for review] social media model was able to continue to support pregnant mothers when the impact of Covid-19 led to wide ranging changes in normal maternity service provision. We also sought to examine those features of the intervention which were reported by mothers to be most useful as the crisis progressed.

## 3. Methods

*3.1 Study design*

The study formed part of an ongoing mixed-methods evaluation of the intervention. This includes a qualitative survey incorporating a validated measure (the Quality of Prenatal Care Questionnaire) posted online at 10-week intervals; content, thematic and narrative analysis of interactions taking place between participants on the social media groups; and socio-linguistic analysis of selected online interaction. The data discussed here was collected using a short stand-alone electronic survey that was sent separately from the routine evaluation surveys, 3 weeks into the UK lockdown period.

*3.2 Survey design and content*

A brief five-item survey was developed by the two senior midwives managing the intervention with input from the wider research team. Participants were asked to rate four statements using a five-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. The fifth item in the survey was an open question which required a free text response.

*3.3 Survey process*

Pregnant mothers who were members of an active [Removed for review] group at a participating NHS maternity unit were sent a link to the electronic survey by one of the senior midwives. The survey was built using the JISC online survey tool, [14] and hosted on a secure server at the University of Salford. The maternity units involved in the study were based at: Royal Bolton Hospital, Ingleside Birth and Community Centre (Bolton NHS Foundation Trust), Warwick Hospital and Bluebell Birth Centre (South Warwickshire NHS Foundation Trust), Liverpool women's NHS Foundation Trust, Stepping Hill Hospital (Stockport), Leeds General Infirmary, and St James's University Hospital (Leeds).

The survey was kept open for a relatively short period of time (1 week) to enable the analysis to be undertaken at speed and for it to remain relevant to the current context. Participants were required to consent to involvement in the ongoing evaluation of the intervention as a condition of joining a group. Consent to participate in this stand-alone survey was assumed if a participant completed and submitted the online form.

3.4 *Analysis*

Descriptive statistics were used to provide a summary of the key findings from the closed questions. Responses to the free text question were analysed thematically. [20] At a practical level, responses were firstly categorised as either i) Non-crisis-related, or ii) Relating directly to Covid-19 response. Nvivo 12 software [15] was then used to develop a thematic framework based around free coding of the two corpuses. A hierarchy of importance was developed based on the number of times issues

relating to a given theme were reported. The key themes to emerge included: i) Information provision and verification. ii) Managing and reducing feelings of isolation. iii) Intervention specific issues, including crisis adaptations. iv) Impacts on routine care.

## 4. Findings

Of 320 women who were members of an active [Removed for review] group, 156 completed the survey, giving a 49% response rate. 104 (66%) of participants who completed the survey also wrote a response to the free-text question.

### *4.1 Closed questions*

The four closed questions included in the survey were: i) '*I have been accessing my [Removed for review] group more frequently during the Covid-19 period.'* ii) '*I have been able to access more pregnancy-related information from my [Removed for review] group than from my face-to-face care providers during Covid-19.'* iii) '*I feel having my [Removed for review] group has improved my antenatal care during Covid-19.'* iv) '*It has been easier to contact my [Removed for review] for information/advice than my face-to-face provider during Covid-19.'*

i) *'I have been accessing my [Removed for review] group more frequently during the Covid-19 period.'*
Table 1 illustrates responses to statement i: 65 respondents (41%) agreed that they had been accessing their group more often during Covid-19 than they normally would have done, and 55 (35%) strongly agreed. Of the four statements in the survey, this one drew the highest level of disagreement, although this was still at a low level: 12 respondents (8%) disagreed; 1 (0.6%) strongly disagreed.

| Rank value | Option | Count | | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 4.03 |
| 1 | Strongly Disagree | 1 | | **Variance** | 0.86 |
| 2 | Disagree | 12 | | **Standard Deviation** | 0.93 |
| 3 | Neither Agree or Disagree | 23 | | **Lower Quartile** | 4.0 |
| 4 | Agree | 65 | | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 55 | | | |

*Table 1. Frequency of group access.*

ii) '*I have been able to access more pregnancy-related information from my [Removed for review] group than from my face-to-face care providers during Covid-19.'*
67 participants (43%) strongly agreed with the statement, while as with (i), a small minority disagreed (7 – 4%) or strongly disagreed. (See Table 2, below.)

| Rank value | Option | Count | | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 4.21 |
| 1 | Strongly Disagree | 1 | | **Variance** | 0.73 |
| 2 | Disagree | 6 | | **Standard Deviation** | 0.85 |
| 3 | Neither Agree or Disagree | 20 | | **Lower Quartile** | 4.0 |
| 4 | Agree | 62 | | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 67 | | | |

*Table 2. Increased pregnancy-related information*

iii) Table 3 shows the levels of agreement with the statement '*I feel having my [Removed for review] group has improved my antenatal care during Covid-19.'* This statement had the highest number of participants strongly agreeing (73 – 47%) or agreeing (69 – 44%). It also had the lowest number of participants who were ambivalent, neither agreeing or disagreeing (12 – 8%). Only 2 people disagreed or strongly disagreed (1.2%)

| Rank value | Option | Count | | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 4.36 |
| 1 | Strongly Disagree | 1 | | **Variance** | 0.5 |
| 2 | Disagree | 1 | | **Standard Deviation** | 0.72 |
| 3 | Neither Agree or Disagree | 12 | | **Lower Quartile** | 4.0 |
| 4 | Agree | 69 | | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 73 | | | |

*Table 3. Improved antenatal care*

iv) The fourth statement was '*It has been easier to contact my [Removed for review] for information/advice than my face-to-face provider during Covid-19.'* This drew the highest number of ambivalent responses (43 – 27.5%). However a majority of participants still reported agreeing (54 – 35%) or strongly agreeing (52 – 33%). As with the other three statement the level of disagreement or strong disagreement was extremely low (6 – 3.8% / 1 – 0.6%).

| Rank value | Option | Count | | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 3.96 |
| 1 | Strongly Disagree | 1 | | **Variance** | 0.82 |
| 2 | Disagree | 6 | | **Standard Deviation** | 0.91 |
| 3 | Neither Agree or Disagree | 43 | | **Lower Quartile** | 3.0 |
| 4 | Agree | 54 | | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 52 | | | |

*Table 4. Improved contact*

*4.2 Qualitative data – free text comments*

The free text item at the end of the survey was '*Do you have any general comments on how your group has supported you during Covid-19?*' 104 participants (66%) provided responses which varied in length from 2 to 170 words.

*4.2.1 Short generic and non-crisis-related comments*

A small proportion of women (n= 5 / 5%) chose to give a relatively short or generic response that did not specifically refer to the Covid-19 situation. For example: 'Really useful.' (Participant 14); 'Fantastic support.' (Participant 18); 'They're great.' (Participant 83). 26 participants (25%) gave longer one or two sentence responses that referred to the current situation in general but not to a specific element or issue. All of these short or generic comments were positive. For example:

'*All the [Removed for review] staff have been incredible, I'm so grateful to be involved.'*

*Participant 3*

*'It's been great over this challenging time. I think all maternity services should have an online support group like this.'*

*Participant 8*

*'Very informative and reassuring. Really helpful and very supportive to have this group and our wonderful [Removed for review] - thank you so much.'*

*Participant 104*

*4.2.2 Comments relating to Covid-19 response.*

*i) Information provision and verification*

The majority of participants (78 / 75%) directly referred to aspects of information provision in their comments, either in isolation or connected to other concerns. Key aspects related to the respondents' awareness of the increasing (crisis-related) demands on midwives in the hospital setting. [Removed for review] were seen to fill an important gap in support, and do so with urgency, also offering alternative access to professional care in a time where some felt that their queries may be unnecessary or burdensome with the crisis context.

*I've felt reassured and confidently shared info with other pregnant mums who aren't in the group*

*Participant 30*

*There has been a lot of information and advice that I would not have bothered the community midwives for at this time. It has been great for letting me know that the decisions being made are in the best interests of patients.*

*Participant 2*

*I think they've juggled the need for Covid reassurance and information with the objectives of the group really well.*

*Participant 11*

*Invaluable support and information. Providing us up to date government advice and info on the trusts response. I have not received any other updates from the trust other than through [Removed for review]. I was only called two days before I was due to start antenatal to say it was cancelled however, I knew this already via [Removed for review]. The [Removed for review] and mums have been an amazing support through this challenging time.*

*Participant 12*

The quality of shared information and the significance of professional validation was crucial to women taking part in the intervention. In turn, respondents noted how levels of trust and access to verified information and expertise had a direct impact on levels of stress and anxiety, particularly in relation to that caused by misinformation.

> [Removed for review] *have been amazing through all of this! They have always been on hand to answer questions or anxieties even when they have their own families and are working extra to support the NHS. They have given me information which I never even knew about and have carefully explained it if anyone/myself if unsure.*
>
> *Participant 4*

> *It's hard with a lot of uncertainty, and I've found I've been avoiding the normal pregnancy forums as there's so much misinformation, and everything is different across different trusts and lots of very anxious people I find they were just stressing me out. I found it invaluable to have a place to come to with Information both valid to my birthing centre and that I can trust. This group has lowered my anxiety massively in relation to Covid-19.*
>
> *Participant 103*

> *I honestly don't know what I would have done without this. The [Removed for review] have gone above and beyond in a situation where they have extra massive stress on. Greatly appreciated. I would have been lost without them and stuck in a horrid cycle of 'fake news' no doubt*
>
> *Participant 13*

> *People have shared worries and supported each other. The* [group] *midwives have been very reassuring and provided a lot of information which has been very reassuring.*
>
> *Participant 40*

> *Through all the anxiety and stress I feel the midwives have been great in helping me and other women in the group to reduce it all and trying to assure us and keep us up to date*
>
> *Participant 73*

> *[Midwife Moderator name] has been amazing. When I came into the hospital for an appointment, she made me feel a million times better and a lot less anxious about things.*
>
> *Participant 70*

A number of participants highlighted that social media-based interventions do not suit everyone, and that for some people there was the potential for certain types of group discussion to contribute to greater levels of anxiety. In this regard, the presence of the midwife moderators, distinguishing this intervention from "normal pregnancy forums" (P103), was crucial in terms of providing reassurance.

> *I think there are some negatives to the group where some mums were panicking about the situation which made me more concerned than I was before. Midwives were reassuring though. It's also easy to get regular updates on here which is useful given the rapidly changing status*
>
> *Participant 59*

> *To be honest I have been avoiding these kinds of groups more since Covid, because I find them to be a source of stress. I have been checking my notifications for the group though.*
>
> *Participant 34*

Similarly, for some respondents who were able to maintain regular contact with their assigned midwife during the crisis, the appeal of and need for, a dedicated online intervention was not as marked. In some Trusts and individual maternity units where online information provision was already well integrated, mothers reported using these alongside or instead of *[Removed for review]*.

> *I find it quite easy to speak to my [community] midwife about any concerns however I haven't really referred to [Removed for review] about Covid 19 much as I feel like the information we have been provided is something I can google, it's sometimes faster to google things and not panic other people, as I know the [Removed for review] aren't always able to respond straight away. I've noticed the info I have been given has been the same articles I've read online.*
>
> *Participant 48*

> *The hospital has set up a Facebook group for updates which has been useful, this is separate from the [Removed for review] group and has been more useful.*
>
> *Participant 50*

*ii) Managing and reducing feelings of isolation*

Along with the provision of professionally validated information, a key aim of the *[Removed for review]* initiative has also been to facilitate the development of virtual communities of practice where pregnant women can connect with one another and offer mutual psychological and emotional support. In the context of Covid-19, for many women this function gained added significance.

*It's been my life line in these uncertain times. I feel closer to [ Midwife Moderator name] than any other midwife that has cared for me in this pregnancy and my last. I go to them first before anyone for support .*

*Participant 64*

*It's been even more important having a group of women who are in the same position as you as these are very extreme and unique circumstances and it's very easy to feel very alone but the group has helped with this. [Having the group] has made us feel more secure.*

*Participant 24*

*It has been a lifeline knowing that other local women are going through the same thing as me.*

*Participant 23*

*Having a community of other pregnant women has felt comforting. . . It's made me feel less alone as the other ladies are going through it as well and we can all share our experiences and support each other.*

*Participant 27*

*The [Removed for review] group has been invaluable. . . It's just been great to have the support from the other mums all going through the same thing, plus the midwives regularly alerting us to key guidance and other bits and pieces related to Covid-19 and pregnancy. I would have felt very lost and honestly quite anxious without the [Removed for review] group.*

*Participant 76*

*iii) Intervention specific issues, including crisis adaptations*

As the Covid-19 crisis developed, individual midwife-moderators were able to capitalise on functions built in to the social media platform (such as livestreaming) to rapidly respond to required changes in practice and deliver trust-specific information.

*They have been excellent. The 2 hour (!) Facebook live* [livestreaming event] *was detailed, thorough and specific to our trust which was invaluable at a time when antenatal classes and hospital tours are cancelled indefinitely.*

*Participant 55*

[They] *have been giving us regular updates on not only what advice there is for pregnant ladies during covid-19, but they are keeping us up to date on what is happening at our hospital. This has been very reassuring. It has really helped that they*

> *are giving us lots of information and in particular doing Facebook lives* [livestreaming event] *on topics we want to know about - this has been amazing, as my antenatal classes were all cancelled.*
>
> *Participant 41*

The ability of mothers to easily contact a professional midwife online and be guaranteed a response is a key feature of the *[Removed for review]* intervention model. [13] With widespread restrictions on face-to-face maternity care this feature became particularly important.

> *I've been consultant lead from the start. Saw my midwife approximately twice and have never heard from her since. If it wasn't for the group I would be completely and utterly alone in this experience. . . . it's always been easier to message [them] on Facebook as opposed to my actual midwife because I get a response quicker.*
>
> *Participant 53*

> *In today's society it's much more accessible to post to a Facebook group than trying to call a hospital or a community midwife. Much of my generation feel more comfortable using social media than other communication channels. I think the [Removed for review] group is a great tool for asking for information that is not 'critical' e.g. If there was a medical emergency, I would ring the hospital or midwife etc but I wouldn't ring them for something more trivial although it may still be something important to my pregnancy care. I also feel that the [Removed for review] group has been a vital part of communication through this Covid pandemic, they have posted updates of information and best practice for pregnant women as soon as they are available - I haven't received any communication around Covid from either the hospital or community midwife. When there has been a change in care due to Covid it has not always been explained to me why by the hospital, but I have been able to get the answers from the [Removed for review] group.*
>
> *Participant 44*

*iv) Impacts on routine care*

In terms of the practical impact that Covid-19 has had on maternity services, a primary concern of respondents were restrictions on community midwife contact, the cancellation of antenatal classes and a feeling of general disconnection and isolation from routine healthcare support. Respondents were keen to express that while some aspects of routine midwifery care were lacking or slower, this was to be expected, and online access to support seen to appropriately fill this gap.

> *I haven't yet had the same midwife throughout my care and therefore no community midwife contact despite the Covid-19 outbreak and it is now even more unlikely understandably due to the current situation that I will see the same one throughout the rest of my pregnancy. Having this group has ensured I can ask questions, gain*

*information and receive care and friendly advice from both the [Removed for review] and the other participants.*

*Participant 10*

*I would be absolutely lost without this [Removed for review] group during this time of pandemic. The midwives are incredibly helpful, going above and beyond what I could expect of them. They are unbelievably efficient at monitoring and responding the chats and questions on the group. Without them I would have missed appointments and felt entirely abandoned by the system as they have resolved issues for me where I couldn't get in contact with assigned midwife etc. They have been the ONLY consistent support I have had during my pregnancy and the ONLY assurance and place to go that I have that I can find out what I need or what's important or seek help*

*Participant 56*

*I feel like the community midwives have been stretched over this period which although I totally understand has been very disappointing (slow responses, appointments and care not clear) and so having the [Removed for review] group has been really important in keeping the personal touch on any queries that I've had and keeping us updated in the right way.*

*Participant 49*

*Whilst it's nobody's fault that Covid-19 has caused all the classes to be cancelled and midwife appointments to be cut short / moved to telephone, it's been hard! I'd go so far as saying it's actually quite distressing to feel robbed of these events, especially after everyone telling me from the start how important antenatal parent education classes are and to book on straight away! Having the [Removed for review] group has been a godsend not only for community with other mums around the same stage as me, but the fact that it's overseen by qualified midwives is just amazing*

*Participant 17*

*Invaluable support and information. Providing us up to date government advice and info on the trusts response. I have not received any other updates from the trust other than through [Removed for review]. I was only called two days before I was due to start antenatal to say it was cancelled however, I knew this already via [Removed for review]. The Midwife Moderators and mums have been an amazing support through this challenging time.*

*Participant 12*

**Discussion**

The women who took part in this study were all very familiar with using social media and the internet as part of their every-day lives. [16] Similarly, they did not start using this particular social media intervention because of the current pandemic, and neither was the intervention originally designed

with this exceptional situation in mind. What is clear, however, is that in several key ways, pregnant women who would ordinarily have been using a range of maternity services have found the *[Removed for review]* intervention invaluable.

A major effect of the covid-19 response has been to impose heavy restrictions on face-to-face healthcare interactions of all kinds. In maternity care, this has meant that many of the service encounters that pregnant mothers can expect to have - ranging from antenatal classes right through to routine meetings with their community midwife – have been cancelled or restricted to emergency contact only. At the point at which this study was initiated, approximately 3 weeks into UK lockdown, the midwife-moderators running *[Removed for review]* were already capitalising on functions built in to the Facebook platform (such as livestreaming) to deliver trust-specific information. This led 83% of women who completed our survey to agree or strongly agree that during Covid-19 they had been able to access more pregnancy related information from their *[Removed for review]* group than from face-to-face providers. This, coupled with the 91% of respondents who agreed or strongly agreed that having access to a group had improved their antenatal care during Covid-19 gives an indication of the positive impact that the intervention had on the maternity experience of women who were using it during the crisis.

What appears to have made the *[Removed for review]* model so appealing to mothers during the crisis was that it took familiar elements of online engagement, such as easy access to a vast amount of information and the ability to connect instantly with other people, but lessens some of its key drawbacks. In particular, it offered individualised and reliable responses [17] and allowed mothers to verify the credibility of information that was shared. [18, 19] It has been established in previous (i.e. pre-Covid-19) evaluations of this and other comparable online interventions [4, 12] that the quality, provenance and validity of information is of primary concern to users. This was confirmed by the responses we collected. Participants also highlighted how, in the context of Covid-19, the option to be able to use the group as their primary source of maternity related information and support helped reduce information overload and confusion, and do so in a timely manner without instigating feelings of being burdensome on already stretched services. Combined, this resulted in reduced stress and anxiety.

Again, this type of self-initiated filtering has previously been found to be an important feature of *[Removed for review]* user behaviour. [4] Although being a member of a *[Removed for review]* group does not entirely replace general internet searches for information on pregnancy and motherhood, when participants use Google to find information, they often then ask their group to verify what they have found. Underlying this verification is the knowledge that a midwife-moderator will also see the interaction and, even if they were not directly posting contributions to a particular thread, will be there to step in and clarify any misinformation. It appears that one effect of the Covid-19 response has been to greatly heighten the need for pregnant women – who are, like many other people, using the internet as a source of information to a much greater extent during the crisis – to become more selective over what they access.

This was reflected in many of the free text comments we collected, and reportedly had a direct impact on lowering levels of stress and anxiety about pregnancy related issues. However, a number of participants also highlighted that by their nature, social media-based interventions in general might not suit everyone. And that in the atmosphere of heightened anxiety that the crisis has generated there was the potential for open discussions between individuals who are already likely to be some of the most stressed and anxious, to make things worse. Similarly, for some respondents who were able

to maintain regular contact with their assigned midwife during the crisis, the appeal of and need for, a dedicated online intervention was not as marked. In some Trusts and individual maternity units where online information provision was already well integrated, mothers reported that they still preferred to use these alongside or instead of *[Removed for review]*.

**Conclusions**

Prior to Covid-19, membership of a *[Removed for review]* group offered a safe space for pregnant women to share and access information. This study demonstrates that although this professionally mediated social-media model of maternity support was already popular with users, it was, and remains, ideally positioned to help midwives and pregnant mothers meet the unprecedented challenges of antenatal care during the pandemic.

**Acknowledgements**

The study was conducted as part of an ongoing intervention evaluation and was funded by Health Education England (HEE). The views expressed in this publication are those of the authors and not necessarily those of HEE or the Department of Health.

**Ethical approval**

The study was conducted as part of an ongoing service evaluation approved by the National Health Service (NHS) Research Ethics Committee. REC reference: [Removed for review]

**Patient and public involvement**

As a funded pilot intervention, [Name removed] has an advisory group and a steering group. Both of these have active user representation (including midwives and women accessing maternity services). Group members were closely involved in the design and implementation of the service evaluation that this survey forms part of.

**Conflict of interests**

None declared.

**References**

**1)** Knite V (2020) Covid-19: beware online tests and cures, experts say *The Guardian* Tue 31 March.
**2)** Liu, S., Yang, L., Zhang, C., Xiang, Y.T., Liu, Z., Hu, S. and Zhang, B., 2020. Online mental health services in China during the COVID-19 outbreak. The Lancet Psychiatry, 7(4), pp.e17-e18.
**3)** Kiley, R. (2002). Does the internet harm health? Some evidence exists that the internet does
**4)** McCarthy R, Chatwin J, Jones J, Lee S, Butler D & Choucri L (2020) '*Facemums*': the development of midwife-moderated social media groups for women during pregnancy *British Journal of Midwifery* (Accepted - in Press) doi.org/10.1016/j.midw.2020.102710.
**5)** See, for example, https://www.nhs.uk/
**6)** Lagan, B. M., Sinclair, M., and Kernohan, G. W. (2010). Internet Use in Pregnancy Informs Women's Decision Making: A Web-Based Survey. Birth: Issues in Perinatal Care, 37(2),106-115.
**7)** Olson, C. M. (2005). Tracking of food choices across transition to motherhood. Journal of Nutrition Education and behaviour, 37(3), 129-136.
**8)** Johnson, S.L., Safadi, H. and Faraj, S., 2015. The emergence of online community leadership. Information Systems Research, 26(1), pp.165-187.
**9)** Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., and Stern, A. (2004). Health related virtual communities and electronic support groups: systematic review of the effects of online peer to peer interactions. BMJ, 328 (5), 1-6.
**10)** Office of National Statistics (2018) https://www.ons.gov.uk/ (accessed 29/11/2018)
**11)** Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., and Stern, A. (2004). Health related virtual communities and electronic support groups: systematic review of the effects of online peer to peer interactions. BMJ, 328 (5), 1-6.
**12)** McCarthy, R., Choucri, L., Ormandy, P. and Brettle, A., 2017. Midwifery continuity: The use of social media. Midwifery, 52, pp.34-41.
**13)** Chatwin J & McCarthy R (2020) Widening access in online maternity support. *Practicing Midwife* (Accepted - in press).
**14)** https://www.onlinesurveys.ac.uk/
**15)** https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home
**16)** Sinclair, M., Lagan, B.M., Dolk, H. and McCullough, J.E., 2018. An assessment of pregnant women's knowledge and use of the Internet for medication safety information and purchase. Journal of advanced nursing, 74(1), pp.137-147.
**17)** Walsh, T., 2018. "Doing midwifery my way"-Triumphs and challenges of 8 years in a small private practice. Women and Birth, 31, pp.S23-S24.
**18)** Lewallen, L.P. and Côté-Arsenault, D.Y., 2014. Implications for nurses and researchers of Internet use by childbearing women. Nursing for women's health, 18(5), pp.392-400.
**19)** Jay, A., Thomas, H. and Brooks, F., 2018. Induction of labour: How do women get information and make decisions? Findings of a qualitative study. British Journal of Midwifery, 26(1), pp.22-29.
**20)** Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(2), 77-101.

## COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

| Topic | Item No. | Guide Questions/Description | Reported on Page No. |
|---|---|---|---|
| **Domain 1: Research team and reflexivity** | | | |
| *Personal characteristics* | | | |
| Interviewer/facilitator | 1 | Which author/s conducted the interview or focus group? | |
| Credentials | 2 | What were the researcher's credentials? E.g. PhD, MD | |
| Occupation | 3 | What was their occupation at the time of the study? | |
| Gender | 4 | Was the researcher male or female? | |
| Experience and training | 5 | What experience or training did the researcher have? | |
| *Relationship with participants* | | | |
| Relationship established | 6 | Was a relationship established prior to study commencement? | |
| Participant knowledge of the interviewer | 7 | What did the participants know about the researcher? e.g. personal goals, reasons for doing the research | |
| Interviewer characteristics | 8 | What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic | |
| **Domain 2: Study design** | | | |
| *Theoretical framework* | | | |
| Methodological orientation and Theory | 9 | What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis | |
| *Participant selection* | | | |
| Sampling | 10 | How were participants selected? e.g. purposive, convenience, consecutive, snowball | |
| Method of approach | 11 | How were participants approached? e.g. face-to-face, telephone, mail, email | |
| Sample size | 12 | How many participants were in the study? | |
| Non-participation | 13 | How many people refused to participate or dropped out? Reasons? | |
| *Setting* | | | |
| Setting of data collection | 14 | Where was the data collected? e.g. home, clinic, workplace | |
| Presence of non-participants | 15 | Was anyone else present besides the participants and researchers? | |
| Description of sample | 16 | What are the important characteristics of the sample? e.g. demographic data, date | |
| *Data collection* | | | |
| Interview guide | 17 | Were questions, prompts, guides provided by the authors? Was it pilot tested? | |
| Repeat interviews | 18 | Were repeat inter views carried out? If yes, how many? | |
| Audio/visual recording | 19 | Did the research use audio or visual recording to collect the data? | |
| Field notes | 20 | Were field notes made during and/or after the inter view or focus group? | |
| Duration | 21 | What was the duration of the inter views or focus group? | |
| Data saturation | 22 | Was data saturation discussed? | |
| Transcripts returned | 23 | Were transcripts returned to participants for comment and/or | |

| Topic | Item No. | Guide Questions/Description | Reported on Page No. |
|---|---|---|---|
| | | correction? | |
| **Domain 3: analysis and findings** | | | |
| *Data analysis* | | | |
| Number of data coders | 24 | How many data coders coded the data? | |
| Description of the coding tree | 25 | Did authors provide a description of the coding tree? | |
| Derivation of themes | 26 | Were themes identified in advance or derived from the data? | |
| Software | 27 | What software, if applicable, was used to manage the data? | |
| Participant checking | 28 | Did participants provide feedback on the findings? | |
| *Reporting* | | | |
| Quotations presented | 29 | Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number | |
| Data and findings consistent | 30 | Was there consistency between the data presented and the findings? | |
| Clarity of major themes | 31 | Were major themes clearly presented in the findings? | |
| Clarity of minor themes | 32 | Is there a description of diverse cases or discussion of minor themes? | |

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

**Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.**

BMJ Open

# The experiences of pregnant mothers using a social-media based antenatal support service during the COVID-19 lockdown in the UK: findings from a user survey.

| | |
|---|---|
| Journal: | *BMJ Open* |
| Manuscript ID | bmjopen-2020-040649.R1 |
| Article Type: | Original research |
| Date Submitted by the Author: | 03-Sep-2020 |
| Complete List of Authors: | Chatwin, John; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>Butler, Danielle; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>Jones, Jude; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>James, Laura; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>Choucri, Lesley; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>McCarthy, Rose; Health Education England |
| Primary Subject Heading: | Qualitative research |
| Secondary Subject Heading: | Health services research, Public health |
| Keywords: | QUALITATIVE RESEARCH, Telemedicine < BIOTECHNOLOGY & BIOINFORMATICS, Information technology < BIOTECHNOLOGY & BIOINFORMATICS |
| | |

*I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.*

*The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.*

*Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.*

# The experiences of pregnant mothers using a social-media based antenatal support service during the COVID-19 lockdown in the UK: findings from a user survey.

**Dr John Chatwin** *Corresponding author
School of Health and Society
Room MS 3.41, Mary Seacole Building
University of Salford,
Salford
M5 4WT

**t:** +44 (0) 7796425035
**f:** +44 (0) 161 295 5526
**e:** j.r.chatwin@salford.ac.uk

**Ms Danielle Butler**
University of Salford
Salford, UK

**Mrs Jude Jones**
NHS / University of Salford
Salford, UK

**Mrs Laura James**
NHS / University of Salford
Salford, UK

**Dr Lesley Choucri**
University of Salford
Salford, UK

**Dr Rose McCarthy**
**McCarthy@hee.nhs.uk, Rose**
Health Education England
Manchester, UK

**Key words**
Midwife-mediated social media; communities of practice; covid-19; maternity information-provision.

**Word Count**
4407

**Abstract**

**Objectives**

The Coronavirus pandemic has seen unprecedented restrictions on face-to-face healthcare encounters. This has led to an increase in the use of online healthcare resources by service users. Pregnant women have always been a group particularly motivated to seek out information online. The objective of this study was to explore the experiences of mothers who were using an existing NHS social-media based antenatal support service during the early stages of the UK Covid-19 lockdown.

**Design**

A short online survey with four closed questions (scale response) and one open-ended free-text question was given to pregnant women (n=156) who were using the online service three weeks after the start of the UK lockdown. Descriptive statistics are used to present the closed question data. Thematic analysis was applied to the free-text responses.

**Results**

320 women were sent the survey. 156 completed it (49% response rate). Participants provided information relating to frequency of use; information access; relative level of antenatal care; ease of contact. 105 (66%) participants completed the open-ended free-text question. Key themes to emerge related to: i) Information provision and verification. ii) Managing and reducing feelings of isolation iii) Service specific issues, including crisis adaptations. iv) Impact on routine care.

**Conclusions**

The study suggests that that pregnant mothers found a social-media based approach ideally positioned to provide antenatal care and support during the Covid-19 pandemic.

**Strengths and limitations of the study**

- This survey-based study explored the experiences of pregnant women accessing an online maternity support service during the Covid-19 pandemic.
- Approximately half of the of women using the service responded to the survey.
- The design of the survey may have introduced a positive bias towards the service, and detailed demographic information was not collected.
- Only women who were already using the service at the time of Covid-19 were sampled, which could have influenced their attitude towards social-media based support, and the issues they chose to report.
- The sample size may limit the generalisability of the study.

## 1. Background

The Coronavirus pandemic has seen unprecedented restrictions on face to face healthcare encounters throughout the world. One effect of this has been an exponential increase in the use of online healthcare resources by people seeking non-urgent healthcare advice and support. [1, 2] Well before Covid-19, widespread internet availability had fundamentally changed the way many people accessed health information and engaged with health providers. [3] While it is widely acknowledged that much healthcare related information available on the internet is of dubious provenance and can be difficult for people to verify, [4] there has always been a drive by qualified healthcare professionals and their organisations to counter this by providing professionally sanctioned healthcare support and information of all kinds online. [5]

Pregnant women have always been particularly motivated to seek out information online, [6, 7] and the popularity of social media-based interventions as a source of information and support for this group has been growing for a number of years. In addition to being able to access significantly more maternity related information through the internet, many pregnant women also now become members of online communities [8] where they can meet other mothers, share experiences, offer each other social and emotional support and ask and answer questions. [9] Social media use by women of childbearing age in the UK is extremely high, with 93% of 16-24-year olds, 88% of 24-34-year olds, and 85% of 35-44-year olds now classing themselves as active users. [10] Groups specifically aimed at pregnant women have similarly become much more common over the past decade, [11] and added to these are a multitude of privately hosted groups on general social media platforms such as Facebook or Twitter.

In this article, we present an analysis of feedback collected from a survey of pregnant mothers who were using a midwife-moderated social-media-based support service during the early stages of UK lockdown during the Coronavirus outbreak. The service, called *Facemums* (see acknowledgements) is an online initiative which is currently being piloted in maternity units in 12 NHS Trusts in England. It offers pregnant women the opportunity to join private maternity related online discussion groups, hosted on the Facebook social-media platform. Importantly, groups are private, and invitation is via NHS maternity services referral only. Individual groups have a maximum of 20 pregnant mothers and are moderated by two qualified midwives. These midwives, called *Facewives* work together to verify information shared amongst their group, answer specific queries, signpost to other relevant services and sources, and offer evidence-based maternity related advice. Participating NHS maternity units may have several groups running simultaneously. Two senior midwives and a project manager based at the University of Salford oversee the organisation and running of the service and provide training and mentorship the midwife moderators.

A parallel aim of the initiative is to help pregnant mothers develop their own 'virtual' communities of care [12] where they can support each other and share their personal experiences and information. An important role of the moderators is therefore to closely monitor these ongoing interactions (i.e. messages posted by mothers on their group). Then, if necessary, they may step in to offer confirmation, clarify misunderstandings or correct any inaccurate and misleading information that may be shared. Moderators check their group at least once a day in order to do this. A detailed outline of the service model and preliminary evaluation findings are presented elsewhere. [12, 13] Any pregnant mothers attending a maternity unit at a participating Trust who are greater than 15 weeks gestation

are eligible to join *Facemums*. All mothers who were part of an active group at the time of the current study were eligible to complete the survey.

## 2. Objective

The objective of the study was to explore the experiences of mothers who were using the Facemums service during the early stages of the initial Covid-19 UK lockdown. We also sought to examine those features of the service which were reported by mothers to be most useful as the crisis progressed.

## 3. Methods

### *3.1 Facemums evaluation*

This was a stand-alone survey study conducted as part of an ongoing mixed-methods evaluation of the *Facemums* service. The wider evaluation includes regular mixed methods surveys to gather qualitative and experiential information, along with a validated measure (the Quality of Prenatal Care Questionnaire). These are posted online at 10-week intervals. Content, thematic, and narrative analysis of interactions taking place between participants on their groups is also being undertaken, along with the socio-linguistic analysis of selected online activity.

### *3.2 Survey design and content*

The Covid-19 focused survey discussed here was developed by the two senior midwives managing the service with input from the wider research team. It consisted of four short statements that participants were asked to rate using a five-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. The survey also included a final open question which required a free text response. The survey was sent electronically - separately from the routine evaluation surveys – on the 16th April 2020, and remained open for 7 days.

### *3.3 Survey process*

All pregnant mothers who were members of a *Facemums* group at a participating NHS maternity unit were eligible to take part in the study and were sent a link to the electronic survey by one of the Senior Midwives. The Senior Midwives were also responsible for the survey design. There was input from the wider *Facemums* advisory group and PPI representatives, but due to time constraints this was limited. The survey was built using the JISC online survey tool, [14] and hosted on a secure server at the University of Salford. The maternity units involved in the study were based at: Royal Bolton Hospital, Ingleside Birth and Community Centre (Bolton NHS Foundation Trust), Warwick Hospital and Bluebell Birth Centre (South Warwickshire NHS Foundation Trust), Liverpool women's NHS Foundation Trust, Stepping Hill Hospital (Stockport), Leeds General Infirmary, and St James's University Hospital (Leeds).

The survey was launched 16th April 2020, approximately three weeks into the full UK lockdown. It remained open for a relatively short period (1 week) to enable analysis to be undertaken at speed and for it to remain relevant to the current context. Significantly, the majority of respondents who took part sent their replies within 24 hours of receiving the survey. As a pre-condition of joining a *Facemums* group participants had already consented to receiving regular evaluation surveys, so consent to participate in this survey was assumed if it was completed and submitted.

*3.4 Changes to maternity services due to COVID-19*

The response to Covid from individual Trusts and maternity units differed. However in general, there were widespread reductions in face-to-face appointments and home visits. Maternity units operated a significantly reduced service and provided phone or online support where possible. Birth partners were not allowed to be present until the onset of labour, and mothers had to attend for scans alone.

At a practical level, the *Facemums* groups that were already active during lockdown continued to operate in much the same way. However a number of adaptations were made as the situation developed. These included allowing extra non-clinical maternity staff at participating units to join groups and act as support for the midwife moderators. Moderators were also encouraged to start dedicated threads solely for Covid related concerns.

3.5 *Analysis*

Descriptive statistics were used to provide a summary of the key findings from the closed questions. Responses to the free text question were analysed thematically. [15] At a practical level, responses were firstly categorised as either i) Non-crisis-related, or ii) Relating directly to Covid-19 response. Nvivo 12 software [16] was then used to develop a thematic framework based around free coding of the two corpuses. A hierarchy of importance was developed based on the number of times issues relating to a given theme were reported. Analysis was led by the Research Fellow undertaking the wider *Facemums* service evaluation with input from the wider project team.

*3.5 Patient and public involvement*

As a funded pilot intervention *Facemums* has an advisory group and a steering group. Both of these have active user representation (including midwives and women accessing maternity services). Group members were closely involved in the design and implementation of the service evaluation that this survey forms part of.

**Results**

Of 320 women who were members of an active *Facemums* group, 156 completed the survey, giving a 49% response rate. 104 (66%) of participants who completed the survey also wrote a response to the free-text question.

*4.1 Closed questions*

The four closed questions included in the survey were: i) '*I have been accessing my Facemums group more frequently during the Covid-19 period.'* ii) '*I have been able to access more pregnancy-related information from my Facemums group than from my face-to-face care providers during Covid-19.'* iii) '*I feel having my Facemums group has improved my antenatal care during Covid-19.'* iv) '*It has been easier to contact my Facemums group for information/advice than my face-to-face provider during Covid-19.'* Table 1 *(below) summarises the replies to the closed questions.*

Table 1

i) *'I have been accessing my Facemums group more frequently during the Covid-19 period.'*

| Rank value | Option | Count | % of respondents | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 4.03 |
| 1 | Strongly Disagree | 1 | 0.5 | **Variance** | 0.86 |
| 2 | Disagree | 12 | 8 | **Standard Deviation** | 0.93 |
| 3 | Neither Agree or Disagree | 23 | 15 | **Lower Quartile** | 4.0 |
| 4 | Agree | 65 | 40.5 | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 55 | 36 | | |

ii) '*I have been able to access more pregnancy-related information from my Facemums group than from my face-to-face care providers during Covid-19.'*

| Rank value | Option | Count | % of respondents | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 4.21 |
| 1 | Strongly Disagree | 1 | 0.5 | **Variance** | 0.73 |
| 2 | Disagree | 6 | 4 | **Standard Deviation** | 0.85 |
| 3 | Neither Agree or Disagree | 20 | 13 | **Lower Quartile** | 4.0 |
| 4 | Agree | 62 | 40 | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 67 | 42.5 | | |

iii) '*I feel having my Facemums group has improved my antenatal care during Covid-19.'*

| Rank value | Option | Count | % of respondents | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 4.36 |
| 1 | Strongly Disagree | 1 | 0.5 | **Variance** | 0.5 |
| 2 | Disagree | 1 | 0.5 | **Standard Deviation** | 0.72 |
| 3 | Neither Agree or Disagree | 12 | 8 | **Lower Quartile** | 4.0 |
| 4 | Agree | 69 | 44 | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 73 | 47 | | |

iv) '*It has been easier to contact my Facemums group for information/advice than my face-to-face provider during Covid-19.'*

| Rank value | Option | Count | % of respondents | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 3.96 |
| 1 | Strongly Disagree | 1 | 0.5 | **Variance** | 0.82 |
| 2 | Disagree | 6 | 4 | **Standard Deviation** | 0.91 |
| 3 | Neither Agree or Disagree | 43 | 27 | **Lower Quartile** | 3.0 |
| 4 | Agree | 54 | 35 | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 52 | 33.5 | | |

*4.2 Qualitative data – free text comments*

The free text item at the end of the survey was *'Do you have any general comments on how your group has supported you during Covid-19?'* 104 participants (66%) provided responses which varied in length from 2 to 170 words.

*4.2.1 Short generic and non-crisis-related comments*

A small proportion of women (n= 5 / 5%) chose to give a relatively short or generic response that did not specifically refer to the Covid-19 situation. For example: 'Really useful.' (Participant 14); 'Fantastic support.' (Participant 18); 'They're great.' (Participant 83). 26 participants (25%) gave longer one or two sentence responses that referred to the current situation in general but not to a specific element or issue. All of these short or generic comments were positive. For example: '*All the Facemums staff have been incredible, I'm so grateful to be involved.' (Participant 3).*

*4.2.2 Comments relating to Covid-19 response.*

Key themes to emerge related to: i) Information provision and verification. ii) Managing and reducing feelings of isolation iii) Service specific issues, including crisis adaptations. iv) Impact on routine care.

*i) Information provision and verification*

The majority of participants who responded to the survey (n=78 / 75%) directly referred to aspects of information provision in their comments, either in isolation or connected to other concerns. Key aspects related to the respondents' awareness of the increasing (crisis-related) demands on midwives in the hospital setting. *Facemums* groups were seen to fill an important gap in support, and do so with urgency, also offering alternative access to professional care in a time where some felt that their queries may be unnecessary or burdensome within the crisis context.

> *There has been a lot of information and advice that I would not have bothered the community midwives for at this time. It has been great for letting me know that the decisions being made are in the best interests of patients.*
>
> *Participant 2*

> *Invaluable support and information. Providing us up to date government advice and info on the trusts response. I have not received any other updates from the trust other than through Facemums. I was only called two days before I was due to start antenatal to say it was cancelled however, I knew this already via Facemums. The Facewives and mums have been an amazing support through this challenging time.*
>
> *Participant 12*

The quality of shared information and the significance of professional validation was crucial to women who responded to the survey. In turn, respondents noted how levels of trust and access to verified

information and expertise had a direct impact on levels of stress and anxiety, particularly in relation to that caused by misinformation.

> *It's hard with a lot of uncertainty, and I've found I've been avoiding the normal pregnancy forums as there's so much misinformation, and everything is different across different trusts and lots of very anxious people I find they were just stressing me out. I found it invaluable to have a place to come to with Information both valid to my birthing centre and that I can trust. This group has lowered my anxiety massively in relation to Covid-19.*
>
> *Participant 103*

A number of respondents highlighted that social media-based support does not suit everyone, and that for some people there was the potential for certain types of group discussion to increase levels of anxiety. In this regard, the presence of the midwife moderators, distinguished *Facemums* from "normal pregnancy forums" (P-103) and was crucial in terms of providing reassurance.

> *I think there are some negatives to the group where some mums were panicking about the situation which made me more concerned than I was before. Midwives were reassuring though. It's also easy to get regular updates on here which is useful given the rapidly changing status*
>
> *Participant 59*

> *To be honest I have been avoiding these kinds of groups more since Covid, because I find them to be a source of stress. I have been checking my notifications for the group though.*
>
> *Participant 34*

Similarly, for some respondents who were able to maintain regular contact with their assigned midwife during the crisis, the appeal of and need for, a dedicated online service was not as marked. In some Trusts and individual maternity units where online information provision was already well integrated, mothers reported using these alongside, or instead of *Facemums*.

> *I find it quite easy to speak to my [community] midwife about any concerns however I haven't really referred to Facemums about Covid 19 much as I feel like the information we have been provided is something I can google, it's sometimes faster to google things and not panic other people, as I know the Facewives aren't always able to respond straight away. I've noticed the info I have been given has been the same articles I've read online.*
>
> *Participant 48*

> *The hospital has set up a Facebook group for updates which has been useful, this is separate from the Facemums group and has been more useful.*
>
> *Participant 50*

*ii) Managing and reducing feelings of isolation*

Along with the provision of professionally validated information, a key aim of the *Facemums* initiative has been to facilitate the development of virtual communities of practice where pregnant women can connect with one another and offer mutual psychological and emotional support. In the context of Covid-19, for many women who responded to the survey this function gained added significance.

> *It's been my lifeline in these uncertain times. I feel closer to [group Midwife Moderator name] than any other midwife that has cared for me in this pregnancy and my last. I go to them first before anyone for support .*
>
> *Participant 64*

> *[During Covid] it's been even more important having a group of women who are in the same position as you as these are very extreme and unique circumstances and it's very easy to feel very alone but the group has helped with this. [Having the group] has made us feel more secure.*
>
> *Participant 24*

> *. . . it's just been great to have the support from the other mums all going through the same thing, plus the Facewives regularly alerting us to key guidance and other bits and pieces related to Covid-19 and pregnancy. I would have felt very lost and honestly quite anxious without the Facemums group.*
>
> *Participant 76*

*iii) Service specific issues, including crisis adaptations*

As the Covid-19 crisis developed, individual midwife-moderators were able to capitalise on functions built in to the social media platform (such as livestreaming) to respond rapidly to required changes in practice and deliver trust-specific information.

> *They have been excellent. The 2 hour (!) Facebook live* [livestreaming event] *was detailed, thorough and specific to our trust which was invaluable at a time when antenatal classes and hospital tours are cancelled indefinitely.*
>
> *Participant 55*

> [They] *have been giving us regular updates on not only what advice there is for pregnant ladies during covid-19, but they are keeping us up to date on what is happening at our hospital. This has been very reassuring. It has really helped that they are giving us lots of information and in particular doing Facebook lives* [livestreaming event] *on topics we want to know about - this has been amazing, as my antenatal classes were all cancelled.*

*Participant 41*

The ability of mothers to easily contact a professional midwife online and be guaranteed a response is a key feature of the *Facemums* model. [13] As restrictions developed on some aspects of face-to-face maternity care this feature became particularly important to a number of respondents:

> *In today's society it's much more accessible to post to a Facebook group than trying to call a hospital or a community midwife. Much of my generation feel more comfortable using social media than other communication channels. I think the group is a great tool for asking for information that is not 'critical' e.g. If there was a medical emergency, I would ring the hospital or midwife etc. but I wouldn't ring them for something more trivial although it may still be something important to my pregnancy care. I also feel that the group has been a vital part of communication through this Covid pandemic, they have posted updates of information and best practice for pregnant women as soon as they are available - I haven't received any communication around Covid from either the hospital or community midwife. When there has been a change in care due to Covid it has not always been explained to me why by the hospital, but I have been able to get the answers from the group.*
>
> *Participant 44*

*iv) Impacts on routine care*

In terms of the practical impact that Covid-19 has had on maternity services, the primary concerns of survey respondents were restrictions on community midwife contact, the cancellation of antenatal classes and a feelings of general disconnection from routine healthcare support. Respondents were keen to express that while some aspects of routine midwifery care were lacking or slower, this was to be expected. Online access to support was seen as helping to fill this gap.

> *I haven't yet had the same midwife throughout my care and therefore no community midwife contact despite the Covid-19 outbreak and it is now even more unlikely, understandably due to the current situation, that I will see the same one throughout the rest of my pregnancy. Having this group has ensured I can ask questions, gain information and receive care and friendly advice from both the Facewives and the other participants.*
>
> *Participant 10*

> *I would be absolutely lost without this group during this time of pandemic. The Facewives are incredibly helpful, going above and beyond what I could expect of them. They are unbelievably efficient at monitoring and responding to the chats and questions on the group. Without them I would have missed appointments and felt entirely abandoned by the system as they have resolved issues for me where I couldn't get in contact with assigned midwife etc. They have been the ONLY consistent support I have had during my pregnancy and the ONLY assurance and place to go that I have that I can find out what I need or what's important or seek help*

*Participant 56*

> *Whilst it's nobody's fault that Covid-19 has caused all the classes to be cancelled and midwife appointments to be cut short / moved to telephone. It's been hard! I'd go so far as saying it's actually quite distressing to feel robbed of these events, especially after everyone telling me from the start how important antenatal parent education classes are and to book on straight away! Having the group has been a godsend not only for community with other mums around the same stage as me, but the fact that it's overseen by qualified midwives is just amazing*

*Participant 17*



**Discussion**

The women who took part in this study were all very familiar with using social media and the internet as part of their every-day lives. [17] Similarly, they did not start using this particular social media service because of the current pandemic, and neither was it originally designed with this exceptional situation in mind. What is clear, however, is that in several key ways, pregnant women who would ordinarily have been using a range of maternity services have found access to *Facemums* extremely useful.

A major effect of the covid-19 response has been to impose restrictions on face-to-face healthcare interactions of all kinds. In maternity care, this has meant that many of the service encounters that pregnant mothers can expect to have - ranging from antenatal classes right through to routine meetings with their community midwife – have been cancelled or restricted to emergency contact only. At the point at which this study was initiated, approximately 3 weeks into UK lockdown, the midwife-moderators running existing groups were already capitalising on functions built in to the Facebook platform (such as livestreaming) to deliver trust-specific information. This led a high proportion of women who completed our survey (82.5%) to agree or strongly agree that during Covid-19 they had been able to access more pregnancy related information from their *Facemums* group than from face-to-face providers. This, coupled with the 91% of respondents who agreed or strongly agreed that having access to a group had improved their antenatal care during Covid-19 gives an indication of the positive impact that *Facemums* had on the maternity experience of women who were using it during the crisis.

What appears to have made the *facemums* model so appealing to mothers during the crisis was that it took familiar elements of online engagement, such as easy access to a vast amount of information and the ability to connect instantly with other people, but lessens some of its key drawbacks. In particular, it offered individualised and reliable responses [18] and allowed mothers to verify the credibility of information that was shared. [19, 20] It has been established in previous (i.e. pre-Covid-19) evaluations of this and other comparable online interventions [21] that the quality, provenance and validity of information is of primary concern to users. This was confirmed by the responses we collected. Participants also highlighted how, in the context of Covid-19, the option to be able to use the group as their primary source of maternity related information and support helped reduce information overload and confusion, and do so in a timely manner without instigating feelings of being burdensome on already stretched services. Combined, this resulted in reduced stress and anxiety.

Although being a member of a group does not appear to entirely replace general internet searches for information on pregnancy and motherhood, when participants use Google to find information, they often then ask their group to verify what they have found. Underlying this verification is the knowledge that a midwife-moderator will also see the interaction and, even if they were not directly posting contributions to a particular thread, will be there to step in and clarify any misinformation.

It appears that one effect of the Covid-19 response has been to greatly heighten the need for people – not only pregnant women – to use the internet as a source of healthcare information and support. [22, 23] This was reflected in many of the free text comments we collected. However, a number of our participants also highlighted that by their nature, social media-based interventions might not suit everyone. It appears that in the atmosphere of heightened anxiety that the crisis has generated there is the potential for open discussions between individuals who are already likely to be some of the most stressed and anxious, to make things worse. Similarly, for some respondents who were able to maintain regular contact with their assigned midwife during the crisis, the appeal of and need for, a dedicated online service was not as marked. In some Trusts and individual maternity units where online information provision was already well integrated, mothers reported that they still preferred to use these alongside or instead of *Facemums.*

**Conclusions**

Prior to Covid-19, membership of a *Facemums* group offered a safe space for pregnant women to share and access information. This study demonstrates that although this professionally mediated social-media model of maternity support was already popular with users, it was, and remains, ideally positioned to help midwives and pregnant mothers meet the unprecedented challenges of antenatal care during the pandemic. A strength of the *Facemums* model has been that it required very little modification to adapt to the emerging crisis. It seems likely that post-pandemic the service will continue to operate in fundamentally the same way, although it is anticipated that the increased levels of usage that have now been established may become a feature of 'new normal' antenatal care for a significant time to come.

**Ethical approval**

The study formed part of an ongoing service evaluation which was approved by Greater Manchester West NHS Research Ethics Committee. REC reference: 19/NW/0011. IRAS project ID: 257015

**Author contributions**

JJ and LJ designed the survey and collected the data. JC assisted with the survey design, conducted the analysis, and led on writing the paper. DB project-managed the Facemums service, assisted with the survey design and delivery, and co-wrote the paper. LC and RM originally designed and supervised the service. All authors commented on a final draft of the paper

**Competing interests**

None declared.

**Funding**

The project is funded by Health Education England (HEE) The views expressed in this publication are those of the authors and not necessarily those of HEE or the Department of Health.

**Data sharing**

The survey data can be provided on request from the authors. Due to ethical concerns, the qualitative data set (free text responses) cannot be made openly available.

**Acknowledgements**

The full title of the main study is: *Facemums 2018 – Bringing relational continuity to the home through social media.*

**References**

**1)** Knite V (2020) Covid-19: beware online tests and cures, experts say *The Guardian* Tue 31 March.

**2)** Liu, S., Yang, L., Zhang, C., Xiang, Y.T., Liu, Z., Hu, S. and Zhang, B., 2020. Online mental health services in China during the COVID-19 outbreak. The Lancet Psychiatry, 7(4), pp.e17-e18.
**3)** Kiley, R. (2002). Does the internet harm health? Some evidence exists that the internet does
**4)** McCarthy R, Chatwin J, Jones J, Lee S, Butler D & Choucri L (2020) '*Facemums*': the development of midwife-moderated social media groups for women during pregnancy *British Journal of Midwifery* (Accepted - in Press) doi.org/10.1016/j.midw.2020.102710.
**5)** See, for example, https://www.nhs.uk/
**6)** Lagan, B. M., Sinclair, M., and Kernohan, G. W. (2010). Internet Use in Pregnancy Informs Women's Decision Making: A Web-Based Survey. Birth: Issues in Perinatal Care, 37(2),106-115.
**7)** Olson, C. M. (2005). Tracking of food choices across transition to motherhood. Journal of Nutrition Education and behaviour, 37(3), 129-136.
**8)** Johnson, S.L., Safadi, H. and Faraj, S., 2015. The emergence of online community leadership. Information Systems Research, 26(1), pp.165-187.
**9)** Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., and Stern, A. (2004). Health related virtual communities and electronic support groups: systematic review of the effects of online peer to peer interactions. BMJ, 328 (5), 1-6.
**10)** Office of National Statistics (2018) https://www.ons.gov.uk/ (accessed 29/11/2018)
**11)** Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., and Stern, A. (2004). Health related virtual communities and electronic support groups: systematic review of the effects of online peer to peer interactions. BMJ, 328 (5), 1-6.
**12)** McCarthy, R., Choucri, L., Ormandy, P. and Brettle, A., 2017. Midwifery continuity: The use of social media. Midwifery, 52, pp.34-41.
**13)** Chatwin J & McCarthy R (2020) Widening access in online maternity support. *Practicing Midwife* (Accepted - in press).
**14)** https://www.onlinesurveys.ac.uk/
**15)** Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(2), 77-101.
**16)** https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home
**17)** Sinclair, M., Lagan, B.M., Dolk, H. and McCullough, J.E., 2018. An assessment of pregnant women's knowledge and use of the Internet for medication safety information and purchase. Journal of advanced nursing, 74(1), pp.137-147.
**18)** Walsh, T., 2018. "Doing midwifery my way"-Triumphs and challenges of 8 years in a small private practice. Women and Birth, 31, pp.S23-S24.
**19)** Lewallen, L.P. and Côté-Arsenault, D.Y., 2014. Implications for nurses and researchers of Internet use by childbearing women. Nursing for women's health, 18(5), pp.392-400.
**20)** Jay, A., Thomas, H. and Brooks, F., 2018. Induction of labour: How do women get information and make decisions? Findings of a qualitative study. British Journal of Midwifery, 26(1), pp.22-29.
**21)** McCarthy, R., Choucri, L., Ormandy, P. and Brettle, A., 2017. Midwifery continuity: The use of social media. Midwifery, 52, pp.34-41.
**22)** Jnr, B.A., 2020. Use of telemedicine and virtual care for remote treatment in response to COVID-19 pandemic. *Journal of Medical Systems*, *44*(7), pp.1-9.
**23)** Chan, A.K.M., Nickson, C.P., Rudolph, J.W., Lee, A. and Joynt, G.M., 2020. Social media for rapid knowledge dissemination: early experience from the COVID-19 pandemic. *Anaesthesia*.

## COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

| Topic | Item No. | Guide Questions/Description | Reported on Page No. |
|---|---|---|---|
| **Domain 1: Research team and reflexivity** | | | |
| *Personal characteristics* | | | |
| Interviewer/facilitator | 1 | Which author/s conducted the interview or focus group? | 1,4 |
| Credentials | 2 | What were the researcher's credentials? E.g. PhD, MD | Title, page 4 |
| Occupation | 3 | What was their occupation at the time of the study? | 4 |
| Gender | 4 | Was the researcher male or female? | 4 |
| Experience and training | 5 | What experience or training did the researcher have? | 4 |
| *Relationship with participants* | | | |
| Relationship established | 6 | Was a relationship established prior to study commencement? | 4 |
| Participant knowledge of the interviewer | 7 | What did the participants know about the researcher? e.g. personal goals, reasons for doing the research | 4 |
| Interviewer characteristics | 8 | What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic | N/A |
| **Domain 2: Study design** | | | |
| *Theoretical framework* | | | |
| Methodological orientation and Theory | 9 | What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis | 4, 5 |
| *Participant selection* | | | |
| Sampling | 10 | How were participants selected? e.g. purposive, convenience, consecutive, snowball | 4 |
| Method of approach | 11 | How were participants approached? e.g. face-to-face, telephone, mail, email | 5 |
| Sample size | 12 | How many participants were in the study? | 5 |
| Non-participation | 13 | How many people refused to participate or dropped out? Reasons? | 5 |
| *Setting* | | | |
| Setting of data collection | 14 | Where was the data collected? e.g. home, clinic, workplace | 4, 5 |
| Presence of non-participants | 15 | Was anyone else present besides the participants and researchers? | N/A |
| Description of sample | 16 | What are the important characteristics of the sample? e.g. demographic data, date | 4, 5 |
| *Data collection* | | | |
| Interview guide | 17 | Were questions, prompts, guides provided by the authors? Was it pilot tested? | N/A |
| Repeat interviews | 18 | Were repeat inter views carried out? If yes, how many? | N/A |
| Audio/visual recording | 19 | Did the research use audio or visual recording to collect the data? | N/A |
| Field notes | 20 | Were field notes made during and/or after the inter view or focus group? | N/A |
| Duration | 21 | What was the duration of the inter views or focus group? | N/A |
| Data saturation | 22 | Was data saturation discussed? | N/A |
| Transcripts returned | 23 | Were transcripts returned to participants for comment and/or | N/A |

| Topic | Item No. | Guide Questions/Description | Reported on Page No. |
|---|---|---|---|
| | | correction? | |
| **Domain 3: analysis and findings** | | | |
| *Data analysis* | | | |
| Number of data coders | 24 | How many data coders coded the data? | 4, 5 |
| Description of the coding tree | 25 | Did authors provide a description of the coding tree? | N/A |
| Derivation of themes | 26 | Were themes identified in advance or derived from the data? | 6 |
| Software | 27 | What software, if applicable, was used to manage the data? | 4, 5 |
| Participant checking | 28 | Did participants provide feedback on the findings? | N/A |
| *Reporting* | | | |
| Quotations presented | 29 | Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number | 7-13 |
| Data and findings consistent | 30 | Was there consistency between the data presented and the findings? | 13-14 |
| Clarity of major themes | 31 | Were major themes clearly presented in the findings? | 13-14 |
| Clarity of minor themes | 32 | Is there a description of diverse cases or discussion of minor themes? | 14 |

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

**Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.**

BMJ Open

# The experiences of pregnant mothers using a social-media based antenatal support service during the COVID-19 lockdown in the UK: findings from a user survey.

| | |
|---|---|
| Journal: | *BMJ Open* |
| Manuscript ID | bmjopen-2020-040649.R2 |
| Article Type: | Original research |
| Date Submitted by the Author: | 14-Oct-2020 |
| Complete List of Authors: | Chatwin, John; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>Butler, Danielle; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>Jones, Jude; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>James, Laura; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>Choucri, Lesley; University of Salford School of Nursing Midwifery and Social Work, School of Nursing, Midwifery, Social Work and Social Science<br>McCarthy, Rose; Health Education England |
| Primary Subject Heading: | Qualitative research |
| Secondary Subject Heading: | Health services research, Public health |
| Keywords: | QUALITATIVE RESEARCH, Telemedicine < BIOTECHNOLOGY & BIOINFORMATICS, Information technology < BIOTECHNOLOGY & BIOINFORMATICS |
| | |

*I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.*

*The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.*

*Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.*

# The experiences of pregnant mothers using a social-media based antenatal support service during the COVID-19 lockdown in the UK: findings from a user survey.

**Dr John Chatwin** ***Corresponding author**
School of Health and Society
Room MS 3.41, Mary Seacole Building
University of Salford,
Salford
M5 4WT

**t:** +44 (0) 7796425035
**f:** +44 (0) 161 295 5526
**e:** john.chatwin@nhs.net

**Ms Danielle Butler**
University of Salford
Salford, UK

**Mrs Jude Jones**
NHS / University of Salford
Salford, UK

**Mrs Laura James**
NHS / University of Salford
Salford, UK

**Dr Lesley Choucri**
University of Salford
Salford, UK

**Dr Rose McCarthy**
**McCarthy@hee.nhs.uk, Rose**
Health Education England
Manchester, UK

**Key words**
Midwife-mediated social media; communities of practice; covid-19; maternity information-provision.

**Word Count**
4407

**Abstract**

**Objectives**

The Coronavirus pandemic has seen unprecedented restrictions on face-to-face healthcare encounters. This has led to an increase in the use of online healthcare resources by service users. Pregnant women have always been a group particularly motivated to seek out information online. The objective of this study was to explore the experiences of mothers who were using an existing NHS social-media based antenatal support service during the early stages of the UK Covid-19 lockdown.

**Design**

A short online survey with four closed questions (scale response) and one open-ended free-text question was given to pregnant women who were using the online service three weeks after the start of the UK lockdown. Descriptive statistics are used to present the closed question data. Thematic analysis was applied to the free-text responses.

**Results**

320 women were sent the survey. 156 completed it (49% response rate). Participants provided information relating to frequency of use; information access; relative level of antenatal care; ease of contact. 105 (66%) participants completed the open-ended free-text question. Key themes to emerge related to: i) Information provision and verification. ii) Managing and reducing feelings of isolation iii) Service specific issues, including crisis adaptations. iv) Impact on routine care.

**Conclusions**

The study suggests that that pregnant mothers found a social-media based approach well positioned to provide antenatal care and support during the Covid-19 pandemic.

**Strengths and limitations of the study**

- This survey-based study explored the experiences of pregnant women accessing an online maternity support service during the Covid-19 pandemic.
- Approximately half of the of women using the service responded to the survey.
- The design of the survey may have introduced a positive bias towards the service, and detailed demographic information was not collected.
- Only women who were already using the service at the time of Covid-19 were sampled, which could have influenced their attitude towards social-media based support, and the issues they chose to report.
- The moderate response rate and lack of socio-demographic data on respondents may limit the generalisability of the study.

## 1. Background

The Coronavirus pandemic has seen unprecedented restrictions on face to face healthcare encounters throughout the world. One effect of this has been an exponential increase in the use of online healthcare resources by people seeking non-urgent healthcare advice and support. [1, 2] Well before Covid-19, widespread internet availability had fundamentally changed the way many people accessed health information and engaged with health providers. [3] While it is widely acknowledged that much healthcare related information available on the internet is of dubious provenance and can be difficult for people to verify, [4] there has always been a drive by qualified healthcare professionals and their organisations to counter this by providing professionally sanctioned healthcare support and information of all kinds online. [5]

Pregnant women have always been particularly motivated to seek out information online, [6, 7] and the popularity of social media-based interventions as a source of information and support for this group has been growing for a number of years. In addition to being able to access significantly more maternity related information through the internet, many pregnant women also now become members of online communities [8] where they can meet other mothers, share experiences, offer each other social and emotional support and ask and answer questions. [9] Social media use by women of childbearing age in the UK is extremely high, with 93% of 16-24-year olds, 88% of 24-34-year olds, and 85% of 35-44-year olds now classing themselves as active users. [10] Groups specifically aimed at pregnant women have similarly become much more common over the past decade, [11] and added to these are a multitude of privately hosted groups on general social media platforms such as Facebook or Twitter.

In this article, we present an analysis of feedback collected from a survey of pregnant mothers who were using a midwife-moderated social-media-based support service during the early stages of UK lockdown during the Coronavirus outbreak. The service, called *Facemums* (see acknowledgements) is an online initiative which is currently being piloted in maternity units in 12 NHS Trusts in England. It offers pregnant women the opportunity to join private maternity related online discussion groups, hosted on the Facebook social-media platform. Importantly, groups are private, and invitation is via NHS maternity services referral only. Individual groups have a maximum of 20 pregnant mothers and are moderated by two qualified midwives. These midwives, called *Facewives* work together to verify information shared amongst their group, answer specific queries, signpost to other relevant services and sources, and offer evidence-based maternity related advice. Participating NHS maternity units may have several groups running simultaneously. Two senior midwives and a project manager based at the University of Salford oversee the organisation and running of the service and provide training and mentorship the midwife moderators.

A parallel aim of the initiative is to help pregnant mothers develop their own 'virtual' communities of care [12] where they can support each other and share their personal experiences and information. An important role of the moderators is therefore to closely monitor these ongoing interactions (i.e. messages posted by mothers on their group). Then, if necessary, they may step in to offer confirmation, clarify misunderstandings or correct any inaccurate and misleading information that may be shared. Moderators check their group at least once a day in order to do this. A detailed outline of the service model and preliminary evaluation findings are presented elsewhere. [12, 13] Any pregnant

mothers attending a maternity unit at a participating Trust who are greater than 15 weeks gestation are eligible to join *Facemums*. All mothers who were part of an active group at the time of the current study were eligible to complete the survey.

## 2. Objective

The objective of the study was to explore the experiences of mothers who were using the Facemums service during the early stages of the initial Covid-19 UK lockdown. We also sought to examine those features of the service which were reported by mothers to be most useful as the crisis progressed.

## 3. Methods

### *3.1 Facemums evaluation*

This was a stand-alone survey study conducted as part of an ongoing mixed-methods evaluation of the *Facemums* service. The wider evaluation includes regular mixed methods surveys to gather qualitative and experiential information, along with a validated measure (the Quality of Prenatal Care Questionnaire). These are posted online at 10-week intervals. Content, thematic, and narrative analysis of interactions taking place between participants on their groups is also being undertaken, along with the socio-linguistic analysis of selected online activity.

### *3.2 Survey design and content*

The Covid-19 focused survey discussed here was developed by the two senior midwives managing the service with input from the wider research team. It consisted of four short statements that participants were asked to rate using a five-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. The survey also included a final open question which required a free text response.

### *3.3 Survey process*

All pregnant mothers who were members of a *Facemums* group at a participating NHS maternity unit were eligible to take part in the study and were sent a link to the electronic survey by one of the Senior Midwives. The Senior Midwives were also responsible for the survey design. There was input from the wider *Facemums* advisory group and PPI representatives, but due to time constraints this was limited. The survey was built using the JISC online survey tool, [14] and hosted on a secure server at the University of Salford. The maternity units involved in the study were based at: Royal Bolton Hospital, Ingleside Birth and Community Centre (Bolton NHS Foundation Trust), Warwick Hospital and Bluebell Birth Centre (South Warwickshire NHS Foundation Trust), Liverpool women's NHS Foundation Trust, Stepping Hill Hospital (Stockport), Leeds General Infirmary, and St James's University Hospital (Leeds).

The survey was electronic (i.e. completed online), and launched on the 16th April 2020, approximately three weeks into the full UK lockdown. It remained open for a relatively short period (1 week) to enable analysis to be undertaken at speed and for it to remain relevant to the current context. Significantly, the majority of respondents who took part sent their replies within 24 hours of receiving the survey. As a pre-condition of joining a *Facemums* group participants had already consented to receiving regular evaluation surveys, so consent to participate in this survey was assumed if it was completed and submitted.

*3.4 Changes to maternity services due to COVID-19*

The response to Covid from individual Trusts and maternity units differed. However in general, there were widespread reductions in face-to-face appointments and home visits. Maternity units operated a significantly reduced service and provided phone or online support where possible. Birth partners were not allowed to be present until the onset of labour, and mothers had to attend for scans alone.

At a practical level, the *Facemums* groups that were already active during lockdown continued to operate in much the same way. However a number of adaptations were made as the situation developed. These included allowing extra non-clinical maternity staff at participating units to join groups and act as support for the midwife moderators. Moderators were also encouraged to start dedicated threads solely for Covid related concerns.

3.5 *Analysis*

Descriptive statistics were used to provide a summary of the key findings from the closed questions. Responses to the free text question were analysed thematically. [15] At a practical level, responses were firstly categorised as either i) Non-crisis-related, or ii) Relating directly to Covid-19 response. Nvivo 12 software [16] was then used to develop a thematic framework based around free coding of the two corpuses. A hierarchy of importance was developed based on the number of times issues relating to a given theme were reported. Analysis was led by the Research Fellow undertaking the wider *Facemums* service evaluation with input from the wider project team. For clarity, some of the respondent examples given in this article contain minor edits (for example, typo corrections). These are not marked. Any significant edits, such as shortened sections or the anonymising of names and places, are indicated using [square brackets]

*3.5 Patient and public involvement*

As a funded pilot intervention *Facemums* has an advisory group and a steering group. Both of these have active user representation (including midwives and women accessing maternity services). Group members were closely involved in the design and implementation of the service evaluation that this survey forms part of.

**Results**

Of 320 women who were members of an active *Facemums* group, 156 completed the survey, giving a 49% response rate. 104 (66%) of participants who completed the survey also wrote a response to the free-text question.

*4.1 Closed questions*

The four closed questions included in the survey were: i) '*I have been accessing my Facemums group more frequently during the Covid-19 period.'* ii) '*I have been able to access more pregnancy-related information from my Facemums group than from my face-to-face care providers during Covid-19.'* iii) '*I feel having my Facemums group has improved my antenatal care during Covid-19.'* iv) '*It has been*

*easier to contact my Facemums group for information/advice than my face-to-face provider during Covid-19.'* Table 1 *(below) summarises the replies to the closed questions.*

Table 1

i) *'I have been accessing my Facemums group more frequently during the Covid-19 period.'*

| Rank value | Option | Count | % of respondents | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 4.03 |
| 1 | Strongly Disagree | 1 | 0.5 | **Variance** | 0.86 |
| 2 | Disagree | 12 | 8 | **Standard Deviation** | 0.93 |
| 3 | Neither Agree or Disagree | 23 | 15 | **Lower Quartile** | 4.0 |
| 4 | Agree | 65 | 40.5 | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 55 | 36 | | |

ii) '*I have been able to access more pregnancy-related information from my Facemums group than from my face-to-face care providers during Covid-19.'*

| Rank value | Option | Count | % of respondents | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 4.21 |
| 1 | Strongly Disagree | 1 | 0.5 | **Variance** | 0.73 |
| 2 | Disagree | 6 | 4 | **Standard Deviation** | 0.85 |
| 3 | Neither Agree or Disagree | 20 | 13 | **Lower Quartile** | 4.0 |
| 4 | Agree | 62 | 40 | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 67 | 42.5 | | |

iii) '*I feel having my Facemums group has improved my antenatal care during Covid-19.'*

| Rank value | Option | Count | % of respondents | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 4.36 |
| 1 | Strongly Disagree | 1 | 0.5 | **Variance** | 0.5 |
| 2 | Disagree | 1 | 0.5 | **Standard Deviation** | 0.72 |
| 3 | Neither Agree or Disagree | 12 | 8 | **Lower Quartile** | 4.0 |
| 4 | Agree | 69 | 44 | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 73 | 47 | | |

iv) '*It has been easier to contact my Facemums group for information/advice than my face-to-face provider during Covid-19.'*

| Rank value | Option | Count | % of respondents | | |
|---|---|---|---|---|---|
| | | | | **Mean rank** | 3.96 |
| 1 | Strongly Disagree | 1 | 0.5 | **Variance** | 0.82 |
| 2 | Disagree | 6 | 4 | **Standard Deviation** | 0.91 |
| 3 | Neither Agree or Disagree | 43 | 27 | **Lower Quartile** | 3.0 |
| 4 | Agree | 54 | 35 | **Upper Quartile** | 5.0 |
| 5 | Strongly Agree | 52 | 33.5 | | |

*4.2 Qualitative data – free text comments*

The free text item at the end of the survey was *'Do you have any general comments on how your group has supported you during Covid-19?'* 104 participants (66%) provided responses which varied in length from 2 to 170 words.

*4.2.1 Short generic and non-crisis-related comments*

A small proportion of women (n= 5 / 5%) chose to give a relatively short or generic response that did not specifically refer to the Covid-19 situation. For example: 'Really useful.' (Participant 14); 'Fantastic support.' (Participant 18); 'They're great.' (Participant 83). 26 participants (25%) gave longer one or two sentence responses that referred to the current situation in general but not to a specific element or issue. All of these short or generic comments were positive. For example: *'All the Facemums staff have been incredible, I'm so grateful to be involved.' (Participant 3).*

*4.2.2 Comments relating to Covid-19 response.*

Key themes to emerge related to: i) Information provision and verification. ii) Managing and reducing feelings of isolation iii) Service specific issues, including crisis adaptations. iv) Impact on routine care.

*i) Information provision and verification*

The majority of participants who responded to the survey (n=78 / 75%) directly referred to aspects of information provision in their comments, either in isolation or connected to other concerns. Key aspects related to the respondents' awareness of the increasing (crisis-related) demands on midwives in the hospital setting. *Facemums* groups were seen to fill an important gap in support, and do so with urgency, also offering alternative access to professional care in a time where some felt that their queries may be unnecessary or burdensome within the crisis context.

> *There has been a lot of information and advice that I would not have bothered the community midwives for at this time. It has been great for letting me know that the decisions being made are in the best interests of patients.*
>
> *Participant 2*

> *Invaluable support and information. Providing us up to date government advice and info on the trusts response. I have not received any other updates from the trust other than through Facemums. I was only called two days before I was due to start antenatal to say it was cancelled however, I knew this already via Facemums. The Facewives and mums have been an amazing support through this challenging time.*
>
> *Participant 12*

The quality of shared information and the significance of professional validation was crucial to women who responded to the survey. In turn, respondents noted how levels of trust and access to verified information and expertise had a direct impact on levels of stress and anxiety, particularly in relation to that caused by misinformation.

> *It's hard with a lot of uncertainty, and I've found I've been avoiding the normal pregnancy forums as there's so much misinformation, and everything is different across different trusts and lots of very anxious people I find they were just stressing me out. I found it invaluable to have a place to come to with Information both valid to my birthing centre and that I can trust. This group has lowered my anxiety massively in relation to Covid-19.*
>
> *Participant 103*

A number of respondents highlighted that social media-based support does not suit everyone, and that for some people there was the potential for certain types of group discussion to increase levels of anxiety. In this regard, the presence of the midwife moderators, distinguished *Facemums* from "normal pregnancy forums" (P-103) and was crucial in terms of providing reassurance.

> *I think there are some negatives to the group where some mums were panicking about the situation which made me more concerned than I was before. Midwives were reassuring though. It's also easy to get regular updates on here which is useful given the rapidly changing status*
>
> *Participant 59*

> *To be honest I have been avoiding these kinds of groups more since Covid, because I find them to be a source of stress. I have been checking my notifications for the group though.*
>
> *Participant 34*

Similarly, for some respondents who were able to maintain regular contact with their assigned midwife during the crisis, the appeal of and need for, a dedicated online service was not as marked. In some Trusts and individual maternity units where online information provision was already well integrated, mothers reported using these alongside, or instead of *Facemums*.

> *I find it quite easy to speak to my [community] midwife about any concerns however I haven't really referred to Facemums about Covid 19 much as I feel like the information we have been provided is something I can google, it's sometimes faster to google things and not panic other people, as I know the Facewives aren't always able to respond straight away. I've noticed the info I have been given has been the same articles I've read online.*
>
> *Participant 48*

> *The hospital has set up a Facebook group for updates which has been useful, this is separate from the Facemums group and has been more useful.*
>
> *Participant 50*

*ii) Managing and reducing feelings of isolation*

Along with the provision of professionally validated information, a key aim of the *Facemums* initiative has been to facilitate the development of virtual communities of practice where pregnant women can connect with one another and offer mutual psychological and emotional support. In the context of Covid-19, for many women who responded to the survey this function gained added significance.

> *It's been my lifeline in these uncertain times. I feel closer to [group Midwife Moderator name] than any other midwife that has cared for me in this pregnancy and my last. I go to them first before anyone for support .*
>
> *Participant 64*

> *[During Covid] it's been even more important having a group of women who are in the same position as you as these are very extreme and unique circumstances and it's very easy to feel very alone but the group has helped with this. [Having the group] has made us feel more secure.*
>
> *Participant 24*

> *. . . it's just been great to have the support from the other mums all going through the same thing, plus the Facewives regularly alerting us to key guidance and other bits and pieces related to Covid-19 and pregnancy. I would have felt very lost and honestly quite anxious without the Facemums group.*
>
> *Participant 76*

*iii) Service specific issues, including crisis adaptations*

As the Covid-19 crisis developed, individual midwife-moderators were able to capitalise on functions built in to the social media platform (such as livestreaming) to respond rapidly to required changes in practice and deliver trust-specific information.

> *They have been excellent. The 2 hour (!) Facebook live* [livestreaming event] *was detailed, thorough and specific to our trust which was invaluable at a time when antenatal classes and hospital tours are cancelled indefinitely.*
>
> *Participant 55*

> [They] *have been giving us regular updates on not only what advice there is for pregnant ladies during covid-19, but they are keeping us up to date on what is happening at our hospital. This has been very reassuring. It has really helped that they are giving us lots of information and in particular doing Facebook lives* [livestreaming event] *on topics we want to know about - this has been amazing, as my antenatal classes were all cancelled.*
>
> *Participant 41*

The ability of mothers to easily contact a professional midwife online and be guaranteed a response is a key feature of the *Facemums* model. [13] As restrictions developed on some aspects of face-to-face maternity care this feature became particularly important to a number of respondents:

> *In today's society it's much more accessible to post to a Facebook group than trying to call a hospital or a community midwife. Much of my generation feel more comfortable using social media than other communication channels. I think the group is a great tool for asking for information that is not 'critical' e.g. If there was a medical emergency, I would ring the hospital or midwife etc. but I wouldn't ring them for something more trivial although it may still be something important to my pregnancy care. I also feel that the group has been a vital part of communication through this Covid pandemic, they have posted updates of information and best practice for pregnant women as soon as they are available - I haven't received any communication around Covid from either the hospital or community midwife. When there has been a change in care due to Covid it has not always been explained to me why by the hospital, but I have been able to get the answers from the group.*
>
> *Participant 44*

*iv) Impacts on routine care*

In terms of the practical impact that Covid-19 has had on maternity services, the primary concerns of survey respondents were restrictions on community midwife contact, the cancellation of antenatal classes and a feelings of general disconnection from routine healthcare support. Respondents were keen to express that while some aspects of routine midwifery care were lacking or slower, this was to be expected. Online access to support was seen as helping to fill this gap.

> *I haven't yet had the same midwife throughout my care and therefore no community midwife contact despite the Covid-19 outbreak and it is now even more unlikely, understandably due to the current situation, that I will see the same one throughout the rest of my pregnancy. Having this group has ensured I can ask questions, gain information and receive care and friendly advice from both the Facewives and the other participants.*
>
> *Participant 10*

> *I would be absolutely lost without this group during this time of pandemic. The Facewives are incredibly helpful, going above and beyond what I could expect of them. They are unbelievably efficient at monitoring and responding to the chats and questions on the group. Without them I would have missed appointments and felt entirely abandoned by the system as they have resolved issues for me where I couldn't get in contact with assigned midwife etc. They have been the ONLY consistent support I have had during my pregnancy and the ONLY assurance and place to go that I have that I can find out what I need or what's important or seek help*
>
> *Participant 56*

> *Whilst it's nobody's fault that Covid-19 has caused all the classes to be cancelled and midwife appointments to be cut short / moved to telephone. It's been hard! I'd go so far as saying it's actually quite distressing to feel robbed of these events, especially after everyone telling me from the start how important antenatal parent education classes are and to book on straight away! Having the group has been a godsend not only for community with other mums around the same stage as me, but the fact that it's overseen by qualified midwives is just amazing*
>
> *Participant 17*



**Discussion**

The women who took part in this study were all very familiar with using social media and the internet as part of their every-day lives. [17] Similarly, they did not start using this particular social media service because of the current pandemic, and neither was it originally designed with this exceptional situation in mind. What is clear, however, is that in several key ways, pregnant women who would ordinarily have been using a range of maternity services have found access to *Facemums* extremely useful.

A major effect of the covid-19 response has been to impose restrictions on face-to-face healthcare interactions of all kinds. In maternity care, this has meant that many of the service encounters that pregnant mothers can expect to have - ranging from antenatal classes right through to routine meetings with their community midwife – have been cancelled or restricted to emergency contact only. At the point at which this study was initiated, approximately 3 weeks into UK lockdown, the midwife-moderators running existing groups were already capitalising on functions built in to the Facebook platform (such as livestreaming) to deliver trust-specific information. This led a high proportion of women who completed our survey (82.5%) to agree or strongly agree that during Covid-19 they had been able to access more pregnancy related information from their *Facemums* group than from face-to-face providers. This, coupled with the 91% of respondents who agreed or strongly agreed that having access to a group had improved their antenatal care during Covid-19 gives an indication of the positive impact that *Facemums* had on the maternity experience of women who were using it during the crisis.

What appears to have made the *facemums* model so appealing to mothers during the crisis was that it took familiar elements of online engagement, such as easy access to a vast amount of information and the ability to connect instantly with other people, but lessens some of its key drawbacks. In particular, it offered individualised and reliable responses [18] and allowed mothers to verify the credibility of information that was shared. [19, 20] It has been established in previous (i.e. pre-Covid-19) evaluations of this and other comparable online interventions [21] that the quality, provenance and validity of information is of primary concern to users. This was confirmed by the responses we collected. Participants also highlighted how, in the context of Covid-19, the option to be able to use the group as their primary source of maternity related information and support helped reduce information overload and confusion, and do so in a timely manner without instigating feelings of being burdensome on already stretched services. Combined, this resulted in reduced stress and anxiety.

Although being a member of a group does not appear to entirely replace general internet searches for information on pregnancy and motherhood, when participants use Google to find information, they often then ask their group to verify what they have found. Underlying this verification is the knowledge that a midwife-moderator will also see the interaction and, even if they were not directly posting contributions to a particular thread, will be there to step in and clarify any misinformation.

It appears that one effect of the Covid-19 response has been to greatly heighten the need for people – not only pregnant women – to use the internet as a source of healthcare information and support. [22, 23] This was reflected in many of the free text comments we collected. However, a number of our participants also highlighted that by their nature, social media-based interventions might not suit everyone. It appears that in the atmosphere of heightened anxiety that the crisis has generated there is the potential for open discussions between individuals who are already likely to be some of the most stressed and anxious, to make things worse. Similarly, for some respondents who were able to maintain regular contact with their assigned midwife during the crisis, the appeal of and need for, a dedicated online service was not as marked. In some Trusts and individual maternity units where online information provision was already well integrated, mothers reported that they still preferred to use these alongside or instead of *Facemums.*

**Conclusions**

Prior to Covid-19, membership of a *Facemums* group offered a safe space for pregnant women to share and access information. This study demonstrates that although this professionally mediated social-media model of maternity support was already popular with users, it was, and remains, well positioned to help midwives and pregnant mothers meet the unprecedented challenges of antenatal care during the pandemic. A strength of the *Facemums* model has been that it required very little modification to adapt to the emerging crisis. It seems likely that post-pandemic the service will continue to operate in fundamentally the same way, although it is anticipated that the increased levels of usage that have now been established may become a feature of 'new normal' antenatal care for a significant time to come.

**Ethical approval**

The study formed part of an ongoing service evaluation which was approved by Greater Manchester West NHS Research Ethics Committee. REC reference: 19/NW/0011. IRAS project ID: 257015

**Author contributions**

JJ and LJ designed the survey and collected the data. JC assisted with the survey design, conducted the analysis, and led on writing the paper. DB project-managed the Facemums service, assisted with the survey design and delivery, and co-wrote the paper. LC and RM originally designed and supervised the service. All authors commented on a final draft of the paper

**Competing interests**

None declared.

**Funding**

The project is funded by Health Education England (HEE) The views expressed in this publication are those of the authors and not necessarily those of HEE or the Department of Health.

**Data sharing**

The survey data can be provided on request from the authors. Due to ethical concerns, the qualitative data set (free text responses) cannot be made openly available.

**Acknowledgements**

The full title of the main study is: *Facemums 2018 – Bringing relational continuity to the home through social media.*

**References**

**1)** Knite, V. (2020) Covid-19: beware online tests and cures, experts say. The Guardian Tue 31 March.
**2)** Liu, S., Yang, L., Zhang, C., Xiang, Y.T., Liu, Z., Hu, S. and Zhang, B., 2020. Online mental health services in China during the COVID-19 outbreak. The Lancet Psychiatry, 7(4), pp.e17-e18.

**3)** Kiley, R., 2002. Does the internet harm health?: Some evidence exists that the internet does harm health. BMJ: British Medical Journal, 324(7331), p.238.
**4)** McCarthy, R., Byrne, G., Brettle, A., Choucri, L., Ormandy, P. and Chatwin, J., 2020. Midwife-moderated social media groups as a validated information source for women during pregnancy. Midwifery, 88. 102710.
**5)** See, for example, https://www.nhs.uk/
**6)** Lagan, B. M., Sinclair, M., and Kernohan, G. W. (2010). Internet Use in Pregnancy Informs Women's Decision Making: A Web-Based Survey. Birth: Issues in Perinatal Care, 37(2) pp.106-115.
**7)** Olson, C. M. (2005). Tracking of food choices across transition to motherhood. Journal of Nutrition Education and behaviour, 37(3), pp.129-136.
**8)** Johnson, S.L., Safadi, H. and Faraj, S., 2015. The emergence of online community leadership. Information Systems Research, 26(1), pp.165-187.
**9)** Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., and Stern, A. (2004). Health related virtual communities and electronic support groups: systematic review of the effects of online peer to peer interactions. BMJ, 328 (5), 1-6.
**10)** Office of National Statistics (2018) https://www.ons.gov.uk/ (accessed 29/11/2018)
**11)** Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., and Stern, A. (2004). Health related virtual communities and electronic support groups: systematic review of the effects of online peer to peer interactions. BMJ, 328 (5), 1-6.
**12)** McCarthy, R., Choucri, L., Ormandy, P. and Brettle, A., 2017. Midwifery continuity: The use of social media. Midwifery, 52, pp.34-41.
**13)** Chatwin J & McCarthy R (2020) Widening access in online maternity support. Practicing Midwife 23(1), p. 5
**14)** https://www.onlinesurveys.ac.uk/
**15)** Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(2), 77-101.
**16)** https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home
**17)** Sinclair, M., Lagan, B.M., Dolk, H. and McCullough, J.E., 2018. An assessment of pregnant women's knowledge and use of the Internet for medication safety information and purchase. Journal of advanced nursing, 74(1), pp.137-147.
**18)** Walsh, T., 2018. "Doing midwifery my way"-Triumphs and challenges of 8 years in a small private practice. Women and Birth, 31, pp.S23-S24.
**19)** Lewallen, L.P. and Côté-Arsenault, D.Y., 2014. Implications for nurses and researchers of Internet use by childbearing women. Nursing for women's health, 18(5), pp.392-400.
**20)** Jay, A., Thomas, H. and Brooks, F., 2018. Induction of labour: How do women get information and make decisions? Findings of a qualitative study. British Journal of Midwifery, 26(1), pp.22-29.
**21)** McCarthy, R., Choucri, L., Ormandy, P. and Brettle, A., 2017. Midwifery continuity: The use of social media. Midwifery, 52, pp.34-41.
**22)** Jnr, B.A., 2020. Use of telemedicine and virtual care for remote treatment in response to COVID-19 pandemic. Journal of Medical Systems, 44(7), pp.1-9.
**23)** Chan, A.K.M., Nickson, C.P., Rudolph, J.W., Lee, A. and Joynt, G.M., 2020. Social media for rapid knowledge dissemination: early experience from the COVID-19 pandemic. Anaesthesia.

## COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

| Topic | Item No. | Guide Questions/Description | Reported on Page No. |
|---|---|---|---|
| **Domain 1: Research team and reflexivity** | | | |
| *Personal characteristics* | | | |
| Interviewer/facilitator | 1 | Which author/s conducted the interview or focus group? | 1,4 |
| Credentials | 2 | What were the researcher's credentials? E.g. PhD, MD | Title, page 4 |
| Occupation | 3 | What was their occupation at the time of the study? | 4 |
| Gender | 4 | Was the researcher male or female? | 4 |
| Experience and training | 5 | What experience or training did the researcher have? | 4 |
| *Relationship with participants* | | | |
| Relationship established | 6 | Was a relationship established prior to study commencement? | 4 |
| Participant knowledge of the interviewer | 7 | What did the participants know about the researcher? e.g. personal goals, reasons for doing the research | 4 |
| Interviewer characteristics | 8 | What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic | N/A |
| **Domain 2: Study design** | | | |
| *Theoretical framework* | | | |
| Methodological orientation and Theory | 9 | What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis | 4, 5 |
| *Participant selection* | | | |
| Sampling | 10 | How were participants selected? e.g. purposive, convenience, consecutive, snowball | 4 |
| Method of approach | 11 | How were participants approached? e.g. face-to-face, telephone, mail, email | 5 |
| Sample size | 12 | How many participants were in the study? | 5 |
| Non-participation | 13 | How many people refused to participate or dropped out? Reasons? | 5 |
| *Setting* | | | |
| Setting of data collection | 14 | Where was the data collected? e.g. home, clinic, workplace | 4, 5 |
| Presence of non-participants | 15 | Was anyone else present besides the participants and researchers? | N/A |
| Description of sample | 16 | What are the important characteristics of the sample? e.g. demographic data, date | 4, 5 |
| *Data collection* | | | |
| Interview guide | 17 | Were questions, prompts, guides provided by the authors? Was it pilot tested? | N/A |
| Repeat interviews | 18 | Were repeat inter views carried out? If yes, how many? | N/A |
| Audio/visual recording | 19 | Did the research use audio or visual recording to collect the data? | N/A |
| Field notes | 20 | Were field notes made during and/or after the inter view or focus group? | N/A |
| Duration | 21 | What was the duration of the inter views or focus group? | N/A |
| Data saturation | 22 | Was data saturation discussed? | N/A |
| Transcripts returned | 23 | Were transcripts returned to participants for comment and/or | N/A |

| Topic | Item No. | Guide Questions/Description | Reported on Page No. |
|---|---|---|---|
| | | correction? | |
| **Domain 3: analysis and findings** | | | |
| *Data analysis* | | | |
| Number of data coders | 24 | How many data coders coded the data? | 4, 5 |
| Description of the coding tree | 25 | Did authors provide a description of the coding tree? | N/A |
| Derivation of themes | 26 | Were themes identified in advance or derived from the data? | 6 |
| Software | 27 | What software, if applicable, was used to manage the data? | 4, 5 |
| Participant checking | 28 | Did participants provide feedback on the findings? | N/A |
| *Reporting* | | | |
| Quotations presented | 29 | Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number | 7-13 |
| Data and findings consistent | 30 | Was there consistency between the data presented and the findings? | 13-14 |
| Clarity of major themes | 31 | Were major themes clearly presented in the findings? | 13-14 |
| Clarity of minor themes | 32 | Is there a description of diverse cases or discussion of minor themes? | 14 |

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

**Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.**