

## Original Article

Dan Med J 2023;70(10):A12220775

# First-time mothers' experiences with a web-intervention on maternal mentalisation and mental health

Johanne Triantafyllou Lorenzen, Benedikte Julius Ryhl, Sarah Strøyer de Voss & Gritt Overbeck

Centre for General Practice, Department of Public Health, University of Copenhagen, Denmark

Dan Med J 2023;70(10):A12220775

### ABSTRACT

**INTRODUCTION.** Development in infancy and early childhood affects mental and physical health later in life. Maternal mental health and attachment between mother and child are important for a healthy development. This qualitative study explored first-time mothers' experiences with a web-based intervention aimed at improving maternal mentalisation skills and mental health, thereby affecting child development.

**METHODS.** Twelve first-time mothers were interviewed about their experiences using the website.

**RESULTS.** During pregnancy, the mothers were positive towards using the web-intervention to find information and support for emotional challenges related to the transition to motherhood. However, the interest decreased after giving birth. The mothers requested a website that covered both physical and mental aspects of motherhood and provided a possibility for mothers to exchange experiences to normalise challenges. Moreover, they wanted the website to be easily accessible on a smartphone.

**CONCLUSION.** First-time mothers experienced a need for emotional support during their transition to motherhood and were positive towards using online solutions to obtain this support. In order to be integrated into mothers' everyday life, the intervention should be an 'all-in-one' solution, covering both physical and mental aspects of motherhood and infancy, include a chat forum and be easily accessible by smartphone app.

**FUNDING.** TRYG Foundation and KEU, Capital Region of Denmark.

**TRIAL REGISTRATION.** Not relevant.

Development in infancy and early childhood is affected by a wide range of factors, e.g., mother-child interaction, attachment and maternal mental health [1]. Mothers with poor mental health may be unable to give their children the needed support and create a secure attachment pattern [2]. The transition to motherhood can be challenging and mothers may feel vulnerable at this point in life [3]. This transition, however, gives mothers the opportunity to develop adequate skills to avoid repeating patterns of past generations [4]. Therefore, targeting new mothers with interventions designed to improve mother-child interaction and attachment may potentially have positive effects on infant and child development [1, 2], prevent poor outcomes later in the child's life and contribute to improving mental health at a population level [4].

Mentalisation-based interventions represent a promising approach when targeting new mothers. These

interventions aim to ensure a secure attachment in the child by enhancing mothers' reflective functioning; the ability to understand their own and others' mental states and how these states relate to behaviour [5]. Moreover, web-based interventions show promising results when targeting new mothers [6] and have certain advantages over home-based interventions; they are more cost-effective and the outcome is likely to be just as profitable, or even more so, than home-based interventions [7].

We aimed to explore first-time mothers' experiences with using a mentalisation-based website.

## METHODS

The present study is nested in the Family Wellbeing Project, a cluster-randomised controlled trial aimed at improving mental wellbeing in Danish families with young children [8]. Clinicians (general practitioners (GPs) and staff involved in antenatal and postnatal assessments) in the trial intervention group participated in a two-day training course covering child development, parent-child interaction and use of the mentalisation-based website [robustbarn.dk](http://robustbarn.dk) ("resilient child"). Robustbarn.dk is a website designed for pregnant women and new parents. The website is based on information about mentalisation, cognitive skills, infant and child, and the function of the nervous system, especially during stress or adversity. The content of the website was developed in collaboration with GPs and midwives. A prototype of the website was evaluated by nine women from the target group. The website is a collection of brief psycho-educational texts, audio files and exercises and includes e-learning modules, e.g., information about normal emotional reactions in pregnancy, preparing for delivery and support in relating to the infant. GPs recruited pregnant women at their first antenatal assessment (6-10 weeks of gestation), introduced them to the website and encouraged them to explore the website further at home.

This qualitative study was based on 12 semi-structured interviews [9], conducted between February and May 2022. Eleven interviews were conducted virtually via Zoom and one as an in-person interview according to the participants' preferences. Interviews were conducted according to a topic guide covering two overall topics: Mothers' subsequent use of the website and mothers' experiences with handling and addressing mental health issues related to motherhood. The topic guide was developed by BR and JL in continuous dialogue with the other authors. All participating mothers gave informed consent prior to participation and were given a 200 DKK gift card for their participation.

A total of 51 out of 354 first-time mothers from the intervention group of the Family Wellbeing Project were invited to participate in the study by a letter sent to their digital mailbox. To ensure that the mothers had sufficient experience using the website to have formed an opinion about it, we only invited mothers who had made at least 25 clicks on the website. Ten mothers responded and were included. To ensure data saturation [10], nine non-responding mothers were contacted by phone and two agreed to participate and were also included in the study. After 12 interviews had been conducted by BR and JL, no more new perspectives were emerging, and we judged that data saturation had been reached. Participant characteristics are shown in Table 1.

**TABLE 1** Participant characteristics at the time of recruitment.

Mother no.	Age, yrs	Age of child	Education	Marital status	Place of residence	Clicks on website, n
1	40-44	1 yr + 4 mos.	Student	Single	Capital Region of Denmark	49
2	30-34	1 yr + 8 mos.	-	Married	Region Zealand	198
3	35-39	1 yr + 10 mos.	-	Married	Region Zealand	43
4	30-34	1 yr + 7 mos.	Long-cycle higher	Married	Capital Region of Denmark	103
5	25-29	2 yrs + 1 mo.	-	Cohabiting	Capital Region of Denmark	100
6	25-29	1 yr + 13 days	Long-cycle higher	Married	Capital Region of Denmark	37
7	30-34	1 yr + 6 mos.	Student	Cohabiting	Region Zealand	84
8	30-34	1 yr + 5 mos.	Long-cycle higher	Married	Capital Region of Denmark	78
9	25-29	1 yr + 10 mos.	Student	Married	Region Zealand	38
10	25-29	1 yr + 5 mos.	Student	Married	Capital Region of Denmark	27
11	30-34	1 yr + 3 mos.	Long-cycle higher	Married	Capital Region of Denmark	185
12	25-29	1 yr + 5 mos.	Student	Cohabiting	Region Zealand	72

Interviews were transcribed verbatim, and transcription and coding were done continuously during the interview phase of the study to help ensure data saturation [10]. Interviews were analysed using six-phased thematic analysis, and themes were identified in an inductive, data-driven manner [11] based on coding of the entire data material. Coding and themes were decided after several rounds of discussions between all authors (JTL, BJR, SSdV, GO).

## Ethics

This was a sub-study of a clinical trial. Participants included in the main project gave informed written consent to participate. The study was approved by the Ethics Committee of University of Copenhagen (reg. no. 514-0362/19-3000) (University of Copenhagen approval no: 514-0362/19-3000).

*Trial registration:* not relevant.

## RESULTS

### Mothers' motivation for using the website peaked before birth

When mothers were initially introduced to the website by their clinician, they were positive towards participating in an intervention with an enhanced focus on mental health in relation to pregnancy and motherhood:

“There is much more focus on how your body feels, right? ... I believe there is not a lot about thoughts and feelings. I feel like you are a bit left to yourself when it comes to that”. Mother 1.

They had entered pregnancy expecting to deal with mental health issues on their own, and they were delighted that the Family Wellbeing Project devoted attention to mental health.

After being introduced to the website, all mothers felt motivated to use it actively. Thus, during pregnancy, most mothers spent time exploring the website and their initial reactions were positive. They enjoyed the audio files with breathing exercises, the psycho-educational texts and generally found the texts on the website easy to read and understand.

After birth, many had less time for and focused less on using the website as they were taking care of their newborn:

“I visited it [the website] a lot in the beginning ... because it was new, it was exciting and the pregnancy was exciting. ... And then there was a long period of time when I did not use it after she [the baby] arrived”. Mother 3.

## **Mothers were preoccupied with physical aspects of motherhood and infancy**

Most mothers forgot about the website after birth as it had not been integrated into their information-seeking habits. Moreover, most mothers were preoccupied with the physical aspects of the child and themselves after the baby had been born (e.g., breastfeeding and lack of sleep). They found that the information on the website was too narrow as it focused mainly on mental wellbeing and lacked information about physical challenges:

“If I become concerned ... , my-baby-is-not-developing-properly-concerned’, I would rather go to a website to find out when a baby is supposed to be able to do things. But I don’t think I would ever search for, how do I handle my worries about my baby falling behind in development’ or whatever”. Mother 11.

Mothers did not think to search directly for issues related to mental health online as they were not as easy to specify as were physical health issues. Nevertheless, a few mothers found that the website had fully lived up to their expectations and were able to give specific examples of how they had used the new gained knowledge in everyday life, such as breathing exercises, staying calm in a crisis and handling racing thoughts.

## **Mothers found that emotional challenges of motherhood were better suited for forum discussions**

To cope with the challenges and feelings that follow pregnancy, childbirth and becoming a mother, many mothers felt a need for “normalising” by seeing themselves reflected in other mothers experiencing similar challenges and emotions:

“I think for me it’s all about being able to mirror yourself in others and about normalising things – to normalise feelings that you fear are wrong”. Mother 4.

Therefore, instead of using the website, many mothers used fellow mothers, apps, podcasts or Facebook groups to find information about handling their emotional challenges:

“At first, when I faced this challenge, I felt very alone because it seems that all babies in Denmark just sleep in their stroller and love it. ... So, I went to several online chat forums and after just ten minutes, I already felt much better because I could see that hundreds of others faced the same problem ...”. Mother 6.

As searching in online forums was an important way of obtaining information about mental health challenges, several mothers suggested that the website should contain a chat forum for both mothers and healthcare professionals.

## **Mothers wanted the website to be more easily accessible**

Major barriers to using the website were related to its design. First, information about motherhood was almost exclusively searched for on the mother’s phone, e.g., while the baby was asleep on her or she was nursing. Here, an app would have been easier to access by phone:

“I think the phone quickly became where I checked things. So, if it [the website] had been more accessible on a phone or as an app, I might have used it more”. Mother 9.

Second, a mother pointed out that the website lacked a search function and several mothers requested e-mail reminders to ensure that they did not forget about the website. Some suggested that the website should be designed more as an online course following the child’s development.

## **DISCUSSION**

We explored first-time mothers’ experience with using a mentalisation-based website. Mothers were generally positive towards increasing their focus on psychosocial aspects of their transition to motherhood. During

pregnancy, they visited the website with curiosity; but after birth they had less time, focused less on the site, and the majority never fully integrated the website into their everyday lives due to various barriers related to contents and design.

New mothers are often preoccupied with the physical aspects of motherhood [12, 13]. When asked about their search habits, the by far most searched topic is feeding and diet followed by topics such as teething, peaks of growth, mother's sexuality and mother's weight loss [12].

First-time mothers, in particular, experience a need for social support from other mothers and many use the internet to find this support [14, 15]. Websites and apps that allow mothers to communicate and interact with each other, e.g., via online forums, are very popular [13, 16-18]. New mothers even consider facilitation of social interaction as one of their favourite attributes of the websites they use [17]. Moreover, elements of social support and interaction with fellow mothers have been reported as popular in interventions aimed at improving maternal mental health [18]. The interaction with fellow mothers provides an opportunity for exchanging experiences, asking questions and obtaining advice or information from others with similar challenges [13-15, 19]. This exchange of experiences facilitates normalisation of challenges and related emotions, thus reassuring mothers in their maternal role [13, 14]. This is in line with our findings that mothers requested a possibility to communicate with fellow mothers on the website.

With the increasing use of smartphones, online health information is often accessed by smartphones, especially via apps. A survey of Australian mothers found that almost 75% had used at least one pregnancy app and that half had used at least one parenting app [16]. When targeting new mothers with online health interventions a 'mobile-first' design is more applicable than a website [16, 18]. This is in line with our findings: an app-version of the website was the preferred solution to making the content more easily accessible in everyday life.

Strengths related to this study include that the interviewers were not involved in the development of the website, which was stated at each interview, as this may have made it easier for participants to voice critical opinions. The interviewers had a naive approach stripped of any theoretical framework, which made an inductive method the ideal approach. Limitations include that most mothers appeared resourceful; they either had a long-cycle higher education or were studying to get one, and most lived with a partner. The homogenous sample may be a result of a systematic difference between the mothers interviewed and the mothers who were excluded due to insufficient use of the website at the time of recruitment. Optimally, the study would also have included partners. However, due to recruitment problems among partners in the Family Wellbeing Project, this study only included mothers.

For most mothers, it was crucial that both physical and mental aspects were covered in online support. Relevant information about psychosocial aspects might be accessed when reading about the physical aspect of the same issue, e.g., breastfeeding, thereby easing mothers' difficulty of searching online for issues related to mental health. Additionally, a forum nested in preventive antenatal health programmes where mothers can interact and exchange experiences is warranted. A fully developed version of the online support programme bears the potential to be integrated into existing electronic pregnancy records. Any content would be easiest to access by a smartphone app.

As psychosocial problems are more common among individuals of lower socioeconomic positions [20], future studies should strive to obtain the perspectives of mothers from this group, and future refinement of the programme should aim to include adaption to a more diverse population. Moreover, although GPs and midwives were involved in the development of the programme, in future refinement, we recommend that parents are more actively involved.

## CONCLUSION

First-time mothers were positive towards a mentalisation-based website with which to find information and support during their transition to motherhood, introduced in the context of antenatal and postnatal assessments. Such a web-resource must, however, be developed in close collaboration with the health professionals that introduce them and with new mothers. Thus, future online support focusing on maternal mental health should cover both physical and mental aspects of motherhood and infancy, contain an online chat forum and be accessible via a smartphone app. The perspectives of mothers from lower socioeconomic positions need to be investigated further.

**Correspondence** *Johanne Triantafyllou Lorenzen*. E-mail: johannelorenzen76@gmail.com.

**Accepted** 10 August 2023

**Conflicts of interest** Potential conflicts of interest have been declared. Disclosure forms provided by the authors are available with the article at [ugeskriftet.dk/dmj](https://ugeskriftet.dk/dmj)

**Acknowledgements** The authors take this opportunity to express their gratitude to *Thomas Jensen*, OPUS Consult, for the continuous work developing and refining the intervention website, [robustbarn.dk](https://robustbarn.dk).

**Cite this as** Dan Med J 2023;70(10):A12220775

## REFERENCES

1. Hoffman C, Dunn DM, Njoroge WFM. Impact of postpartum mental illness upon infant development. *Curr Psychiatry Rep*. 2017;19(12):100. doi: 10.1007/s11920-017-0857-8.
2. Righetti-Veltema M, Conne-Perréard E, Bousquet A et al. Postpartum depression and mother-infant relationship at 3 months old. *J Affect Disord*. 2002;70(3):291-306. doi: 10.1016/S0165-0327(01)00367-6.
3. Young C, Roberts R, Ward L. Application of resilience theories in the transition to parenthood: a scoping review. *J Reprod Infant Psychol*. 2019;37(2):139-60. doi: 10.1080/02646838.2018.1540860.
4. Slade A. Keeping the baby in mind: a critical factor in perinatal mental health. *Zero to Three*. 2002;22:10-6.
5. Camoirano A. Mentalizing makes parenting work: a review about parental reflective functioning and clinical interventions to improve it. *Front Psychol*. 2017;8:14. doi: 10.3389/fpsyg.2017.00014.
6. Chae J, Kim HK. Internet-based prenatal interventions for maternal health among pregnant women: a systematic review and meta-analysis. *Child Youth Serv Rev*. 2021;127:106079. doi: 10.1016/j.childyouth.2021.106079.
7. Jiao N, Zhu L, Chong YS et al. Web-based versus home-based postnatal psychoeducational interventions for first-time mothers: a randomised controlled trial. *Int J Nurs Stud*. 2019;99:103385. doi: 10.1016/j.ijnurstu.2019.07.002.
8. Overbeck G, Kragstrup J, Gørtz M et al. Family wellbeing in general practice: a study protocol for a cluster-randomised trial of the web-based resilience programme on early child development. *Trials*. 2023;24(1):7. doi: 10.1186/s13063-022-07045-7.
9. Kvale S, Brinkmann S. Interview: det kvalitative forskningsinterview som håndværk. Hans Reitzels Forlag, 2014.
10. Saunders B, Sim J, Kingstone T et al. Saturation in qualitative research: exploring its conceptualization and operationalization. *Qual Quant*. 2018;52(4):1893-907. doi: 10.1007/s11135-017-0574-8.
11. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77-101. doi: 10.1191/1478088706qp063oa.
12. Slomian J, Bruyère O, Reginster JY, Emonts P. The internet as a source of information used by women after childbirth to meet their need for information: a web-based survey. *Midwifery*. 2017;48:46-52. doi: 10.1016/j.midw.2017.03.005.
13. Loudon K, Buchanan S, Ruthven I. The everyday life information seeking behaviours of first-time mothers. *J Documentation*. 2016;72(1):24-46. doi: 10.1108/JD-06-2014-0080.
14. Slomian J, Emonts P, Vigneron L et al. Identifying maternal needs following childbirth: A qualitative study among mothers, fathers and professionals. *BMC Pregnancy Childbirth*. 2017;17(1):213. doi: 10.1186/s12884-017-1398-1.

15. Bernhardt JM, Felter EM. Online pediatric information seeking among mothers of young children: results from a qualitative study using focus groups. *J Med Internet Res*. 2004;6(1):e7. doi: 10.2196/jmir.6.1.e7.
16. Lupton D, Pedersen S. An Australian survey of women's use of pregnancy and parenting apps. *Women Birth*. 2016;29(4):368-75. doi: 10.1016/j.wombi.2016.01.008.
17. Nellsch ER, Walker LO, Xie B, Vaughan MW. What new mothers' favorite web sites and features tell us about designing web-based health promotion: a content analysis. *Telemed J E Health*. 2013;19(11):875-8. doi: 10.1089/tmj.2013.0023.
18. Sawyer A, Kaim A, Le HN et al. The effectiveness of an app-based nurse-moderated program for new mothers with depression and parenting problems (eMums Plus): pragmatic randomized controlled trial. *J Med Internet Res*. 2019;21(6):e13689. doi: 10.2196/13689.
19. Lupton D. The use and value of digital media for information about pregnancy and early motherhood: a focus group study. *BMC Pregnancy Childbirth*. 2016;16(1):171. doi: 10.1186/s12884-016-0971-3.
20. Allen J, Balfour R, Bell R, Marmot M. Social determinants of mental health. *Int Rev Psychiatry*. 2014;26(4):392-407. doi: 10.3109/09540261.2014.928270.