

Empowering New Moms: Breastfeeding Support in Your Pocket-An Insight from Medella Family App-Pilot Study

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Abstract

Introduction: Lactation is the process by which milk is produced with the assistance of maternal hormones. Insufficient breast-feeding is a common problem that affects the baby's well-being. The term "lacto genesis II" refers to the start of abundant milk production that occurs 30 to 48 hrs after delivery. My Medella Family smartphone application has been developed to support lactating women worldwide. While its primary focus is on pregnancy and breastfeeding, it embodies the principles of mHealth by providing easy access to personalized and expert health information, which is crucial in various health contexts including physiotherapy.

Materials and Methods: Users of the Medella Family app who enrolled between January and September of 2022 received emails with the updated mHealth App Usability Questionnaire. In addition to answering questions about their sociodemographic details, clinical information about lactating mothers and their breastfeeding practices, participants were given the modified mHealth App Usability Questionnaire (MAUQ).

Result: 50 users in all finished the entire questionnaire. Medella Family app mean mMAUQ score was 5.9 (± 0.88), When utilizing the Medella Family App, 80.9% of respondents stated that they felt supported during their nursing experience, and 75.3% stated that the app helped them manage their breastfeeding experience. 86.7% said that Medella Family app was helpful for their health and well-being; and 87.8% said that they were satisfied with Medella Family App overall.

Conclusion: Our study's findings demonstrate Medella family app great usability. Consumers gave Medella Family app very high ratings and said it helped them breastfeed.

Keywords: Breastfeeding, Lactation, Medela family app, Lactating mother.

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Introduction

Breastmilk is clean, safe, and rich in antibodies that help in protecting children from common illnesses. For babies, breastmilk is the best food. For kids aged six to twenty-three months, it's also the perfect energy source [26]. In addition to having a lower mortality, breastfed infants and kids also have decreased incidence of obesity, asthma, SIDS, gastrointestinal tract infections, and serious lower respiratory disorders. Additionally, they do better on intelligence tests and are associated with greater lifetime earnings[6]. It also lowers the risk of high blood pressure, type 2 diabetes, breast cancer, and ovarian cancer in mother[1]. Breastfeeding the baby will significantly reduce maternal and infant morbidity and mortality[24]. Lacto genesis is the process of milk secretion with the maturation of alveolar cells which is determined by the breast fullness and leakage of colostrum which occurs by 3rd day after delivery and the production of milk is referred to as lactation[22]. Secretary initiation and secretary activation are its two steps.

The second trimester of pregnancy is when the secretary initiation start occurs and it is inhibited by the high level of progesterone which is supplied by the placenta. A small amount of milk starts to secrete by the 16th week of gestation. Stage II lacto genesis, otherwise called secretary activation, starts with copious milk production by converting the colostrum after the day of delivery. During this stage, there is a rapid drop in the progesterone level because of the removal of the placenta and the levels of prolactin, cortisol and insulin get elevated[11]. As per Odom et al. (2013), over 60% of women stop nursing earlier than intended or desired, and one of the main causes of this discontinuation is a lack of adequate support[16]. The prevalence of lacto genesis II is 12-55% among all mothers globally with 53% primi parous women in America and 7.9% breastfeeding women in Peru reporting delayed lacto genesis II. Similar prevalence is about 48.7% in Australia and 35.5% in Brazil[12,3,9,18]. Globally, the prevalence rate is 40% at 6 months of infant age[10].

Clinical factors include smoking, maternal expectations, pacifier usage during 1st month, greater milk production, socio economic factors and environmental factors[2,20,17,25,7,14]. Large amounts of milk is secreted at the start of lacto genesis II, which is less likely to be supplemented with formula feeding. However, this process can be stopped or delayed by both internal and external factors, such as mental changes, premature delivery or LSCS, and physiological changes that occur in the mammary glands [12,4]. Previous studies show that delayed breast crawl, excessive weight gain during the antenatal period, flat or inverted nipples, and improper LATCH are considered risk factors [13,19].

Medella Family app is an app which consists of segments which involves antenatal and postnatal period. During antenatal period, the mother can understand important factor such as what happens to her breast during pregnancy, when the breast milk should start, how to breastfeed the baby with flat, inverted and pierced nipple and how the breast will change from pregnancy to weaning, difference between breast milk and formula, importance about colostrum and transitional milk, importance of breastmilk during first hour and first week after delivery. Physiotherapy often employs smartphone apps for remote patient engagement, rehabilitation, and monitoring, similar to how Medela Family supports feeding and baby care. Through these apps, physiotherapists can provide personalized exercise programs, track patient progress, and deliver educational content remotely about breastfeeding, which aligns with the connectivity and support that the Medela Family app offers for its users.

After delivery during postnatal period, the mother is able to know about the benefits of breastmilk for both mother and baby, different types of breastfeeding positions, importance of breastfeeding during the first 6 months of babies lifespan, breastfeeding problems in first month, WHO recommendations about breastfeeding, when to start complementary foods, Tips and advice on breastfeeding. The present study is done to assess the usability of Medela Family application in smartphone by breastfeeding mothers.

Materials and Methodology

The present study was conducted as a component of a postgraduate thesis project, with the main objective being to determine the impact of medela family app usage in breastfeeding support among postpartum mothers especially primi and elderly primi mother. The study was conducted in a medical college that was attached to a hospital located in Thandalam, Kanchipuram district, Chennai, India. We performed a survey to examine the usefulness and usability of Medela family, a smartphone application for breastfeeding assistance. Fans of Medela who signed up between January and May of 2024 were sent surveys by email. 42 questions were asked in the survey, which included the questionnaire, sociodemographic data, and clinical data about the lactating mothers on breastfeeding. A questionnaire was emailed to 200 family users of Medela. 130 individuals completed the survey, and 170 users read the email. There were a total of 50 users who finished the questionnaire. As a result, the questionnaire had a 6.7% response rate, an 86% completion rate, and a 14% dropout rate.

The present study is done to assess the usability of Medella Family application in smartphone by breastfeeding mothers. My Medella Baby Tracker (Medella UK Ltd., Manchester, United Kingdom) supports breastfeeding mothers with an activity tracker, interactive checklist, personalized content, and pumping tips. They offer a Bluetooth connection to their breast pump and track the baby's weight, height, diaper change, and sleep. Sharing data is also possible and consumers can easily share their infant's data with others. The consumer can find educational information and breastfeeding tips on the consumer's page. One of the benefits that consumers pointed out was how the pumping tracker helped them by setting a pumping schedule to boost their milk production^[24].

Outcome Measures: Zhou et al. developed the Medication Adherence Universal Questionnaire in 2019. It has 21 components altogether across three dimensions: accessibility and satisfaction (8 things), system information layout (6 items), and

efficiency (7 items). The 7-point Likert scale that follows: Numbers: 1 denotes very strong acceptance, 2 acceptance, 3 dissatisfaction, 4 neutrality, 5 dispute, 6 strongly disagree, and 7 extremely strongly disagree^[27]. By adding up all of the item scores and dividing by the total number of things, the overall score is determined. A mean number that is nearer to one suggests that the software is easy to use.

Result

Fifty users in all filled out the entire survey. The medela Family app received a mean m MAUQ value of 5.9 (± 0.88). Eighty-nine percent respondent agreed that the Medela family app had helped them manage their breastfeeding experience, 86.7% said it had been helpful for their health and wellbeing, and 87.8 percent said they were satisfied with the app overall with features like, enhanced monitoring, guidance and support for parent, improved adherence to health practices. The early primi and primi mothers face unique challenges as they transition into parenthood. The Medela Family app provides robust support to help ease this journey by providing reminders for feeding, pumping sessions, and other baby-related tasks. First-time and early primi mothers can benefit from connecting with other new parents through the app's community features, sharing experiences, and receiving support. The user's age, type of nursing, and prior breastfeeding experience all had a substantial impact on the overall m- MAUQ questionnaire results.

Table 1. Represents the category and percentage of medela family app usage

CATEGORY	PERCENTAGE
TRACKING BREASTFEEDING	45%
MONITORING BABY'S SLEEP	20%
CONNECTRING WITH COMMUNITY	20%
READING EXPERET TIPS	15%

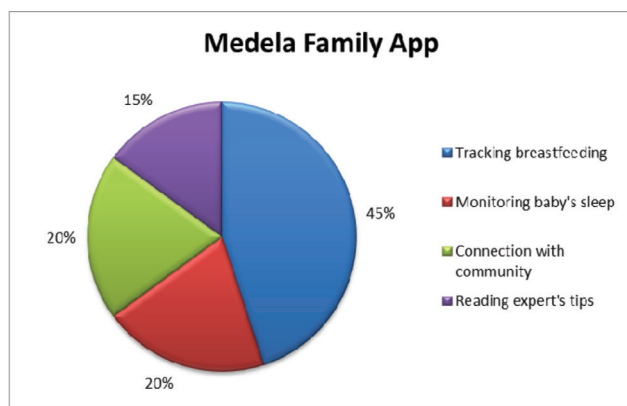


Figure 1: Represents category and the percentage usage among app users.

Discussion

For new-borns, breastfeeding is the best nourishment. In addition to complementary foods beginning at 6 months of age, the American Association of Paediatrics (AAP) recommends exclusive breastfeeding for around six months, followed by the introduction of complementary foods, the AAP also advocates continuous breastfeeding for at least two years^[6].

Breastfeeding benefits the health of both the mother and the child: it reduces the risk of ovarian cancer, postpartum haemorrhage, and so on. Even though breastfeeding has several advantages, only 2 out of 5 infants are thought to be exclusively breastfed at six months of age due to the low breastfeeding rate around the world. A variety of causes can lead to a woman giving up breastfeeding, including discomfort or soreness, trouble latching, the baby's hospitalization to the neonatal intensive care unit, the perception of a low milk supply, the mother's employment situation, and lack of knowledge on breastfeeding.

Global health organizations generally advise nursing for the first six months of life and for a minimum of one to two years after that. A number of variables, such as perceived insufficiency of breast milk, ease of bottle feeding, lack of social or familial support, and breast and nipple pain, influence the succeeding mother's decision to reduce the length of nursing. Premature cessation of lactation

is reported by most women. When a patient gets discharged from the hospital, the federal Centers of Disease Control indicates that 84.1% of them are currently breastfeeding; however, when the patient is breastfed exclusively, the percentage of them breastfeeding reduces to only 25.6% after six months. The percentage of breastfeeding in our population was quite comparable.¹

In addition to improving immunity and lowering the risk of Sudden Infant Death Syndrome (SIDS), breastfeeding also has long-term health advantages for the mother and the newborn. It also reduces childhood obesity and asthma incidence. Benefits for mothers include a lower chance of developing breast and ovarian cancers, a lower incidence of metabolic and cardiovascular disorders in later life, and a reduction in postnatal psychopathologies. **Paola Quifer-Rada, et al., 2023**, has conducted a study among postpartum lactating mother using Lactapp and concluded that the mothers using the app shows a significant improvement in lactation^[15]. **Madayag, et al., 2025**, has conducted a study on evaluating the utility of lactapp mobile health tool on nursing student's breastfeeding knowledge and educational practices and concluded that the lactapp tool effectively enhanced nursing student's knowledge and practices to support breastfeeding mother's effectively^[8]. **Syam A., et al., 2024** has conducted a study on the usability of mommy-Bee app among postpartum Mother's and concluded that it promotes maternal and child health by focusing on technology-driven interventions to assist breastfeeding mothers, while the current study concludes that, it plays an important role in managing breastfeeding and educating the Mother's during antenatal and postnatal period^[21].

Obstetricians, pediatricians, and family doctors are the medical professionals who should encourage lactation. Obstetrical care professionals should support each woman's educated decision regarding whether to start or continue breastfeeding by maintaining their knowledge and skills in advising, according to the American College of Obstetricians and Gynecologists. Supportive interventions for the mother may lengthen and/or increase the pace

of lactation. Modern technologies and telemedicine have proven beneficial in many areas of medicine, including obstetrics. Numerous research specifically focused on the ways that mobile health can facilitate lactation. There are still few studies, nevertheless, that support the value of those mobile treatments and their influence on results. The result of our study shows that Medela Family smartphone application is highly usable and shows a significant improvement in lactation for lactating women.

Comparison with Similar Apps

BETWEEN MOMMY-BEE and MEDELLA FAMILY APP

- **Focus:** Both apps focus on supporting breastfeeding mothers, but the Mommy-Bee app places a stronger emphasis on mental health and breastfeeding efficacy, while the Medella Family app offers a broader range of tracking features, including pregnancy and baby tracking.
- **Usability:** Both apps are designed to be user-friendly, but the Medella Family app includes additional features like hands-free voice control and night mode, which enhance usability.
- **Features:** The Medella Family app provides more comprehensive tracking options and educational resources, while the Mommy-Bee app focuses more on mental health support and early detection of postpartum depressive disorders.

Overall, The Medella Family app has received positive reviews among Mother's for its comprehensive tracking features and ease of use.

Broader Implications

- The pilot study shows that using a mobile app to support breastfeeding moms works and is helpful. This sets the stage for more research.
- It helps identify what makes breastfeeding apps successful. This info is crucial for a larger study to explore these factors in detail.

- The pilot study gives insights into how to collect data, recruit participants, and analyze results. These insights can improve the design of a bigger study.
- It provides preliminary data that can support funding proposals for a larger study. This data shows the potential impact of the research.
- The pilot study gathers feedback from users to improve the app. This feedback is essential for the success of a larger study.
- It highlights the broader benefits of using mobile apps for breastfeeding support. This opens up new research opportunities, like comparing different apps and exploring long-term outcomes.

Conclusion

This study concluded that the Medela Family app plays an important role in managing breastfeeding and educating mother during antenatal and postnatal period.

Study Limitations

- Regularity of usage and self-bias can lead to missing or incorrect data.
- People might make mistakes, so data may be inaccurate.
- Some users might feel uncomfortable sharing information.

Future Recommendations

- Implement long-term studies to observe how user engagement and data reporting evolve over extended periods.
- Conduct regular user experience (UX) studies to continually improve the app's interface and features based on user feedback.
- Utilize machine learning to analyze user behavior patterns and predict future needs or issues.

- Conduct research to adapt the app's content and features to be culturally sensitive and relevant to diverse user groups.

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Ethical clearance: Ethical clearance has been done

Name of the ethics committee clearing the study: Institutional Ethics Committee Saveetha Institute of Medical Sciences and Technical Sciences Date: 19/04/2023 ISRB Reg. No. 01/050/2023/ISRB/PGSR/SCPT

Conflict of interest: This is to confirm that I do not have any conflict of interest during the course of the study.

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