How to choose the “right” breastfeeding app

2018 California Breastfeeding Coalition Summit Knowledge Cafe

Anna Sadovnikova, MPH, MA, Suhail Sidhu, Dalia Kaakour, MS
Outline

1. Introductions
2. Why are we doing this research?
3. How did we develop the Lactation mHealth Criteria?
4. Preliminary Findings
5. Interactive Activity
Introductions

Anna Sadovnikova, MPH, MA is a MD/PhD student and (almost!) IBCLC at UC Davis.

Suhail Sidhu is an undergraduate student at UC Davis.

Dalia Kaakour, MS is a MD/MPH student at the University of Miami Miller School of Medicine.

Michelle Ma, MA, is a MS student in Statistics at the University of Toledo in Ohio (not presenting today).
Conflict of Interest

Anna Sadovnikova is the CEO, President, and majority shareholder of LiquidGoldConcept, Inc.
Why did you choose to attend this Knowledge Cafe session?
Objectives

1. Identify key differences between free, freemium, and not-free breastfeeding apps
2. Describe the key differences in educational content available in breastfeeding apps
3. Summarize the key concepts of the Social Cognitive Theory and the WHO mERA checklist and the relevance of these two frameworks to breastfeeding success
4. Explain the challenges associated with developing an evidence-based rating system like the LiquidGoldConcept Lactation mHealth Criteria
5. Use the LiquidGoldconcept Lactation mHealth Criteria to evaluate breastfeeding apps
Why are we doing this research?

- There are no published comprehensive breastfeeding app reviews
- Mothers and practitioners want to know what app will be the “best” app for education, techniques, tracking, or getting help
- App developers and lactation educators need a framework to develop mobile health technology designed for maternal/infant health promotion and behavior change.
What is the best way to promote positive health behaviors, increase knowledge acquisition and retention, and improve health outcomes (e.g., breastfeeding duration) through mobile technology?
Social-Cognitive Theory

“Most human behavior is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action.”

- Explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral, and environmental influences

Bandura, Rosenstock
WHO mERA Checklist

What: 16 item mobile health technology checklist published in 2016
- What is an mHealth intervention? (content)
- Where are mHealth interventions implemented? (context)
- How are mHealth interventions implemented? (technical features)

Why: To improve the completeness of reporting of mHealth interventions and to support replication of these interventions

How: Through widespread adoption, expectation that the use of these guidelines will standardise the quality of mHealth evidence reporting and, indirectly, improve the quality of mHealth evidence.

Agarwal
Nielsen’s Usability Heuristics for UX/UI

1. Visibility of system status
2. **Match between system and the real world**
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. **Recognition rather than recall**
7. Flexibility and efficiency of use
8. **Aesthetic and minimalist design**
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation
Design of the Lactation mHealth Scale

1. Features ✔
2. Education ✔
3. Technology ✔
4. Design
5. Business Model
Overarching Research Questions

What kinds of features and educational content do breastfeeding apps offer?

As technologies improve, what features are added and which are lost?

What makes and what is the most engaging, evidence-based, comprehensive breastfeeding app?

Which funding system allows for best quality-control and improvement in the breastfeeding app space?
Overview of Methodology

1. Develop a scale grounded in health education theory
2. Review every breastfeeding-related app on the market
3. Assign a score to each app or app category
Tracking the breastfeeding experience

5: Done very often, related to SCT and breastfeeding
4: Done very often and is SCT-related
3: Done very often and related to breastfeeding
2: Done very often
1: Not done often
Daily events that may need to be tracked

Score = 3: Bottle feeding, breastfeeding, pumping, complementary foods

Score = 2: Sleep pattern, notes about baby, mood of baby, tummy time, to do list or reminder, diaper changes, photo every day
Other events that may need to be tracked

Score = 2 (Weekly events): Milestones, visits w/ doctor, growth, education of child, baths

Score = 1 (Rare events): Teeth, medication for baby, temperature, illness of baby, vaccinations

Score = 1 (One-time events): Baby weight/height at birth, baby date of birth, allergies, blood type
Other features unrelated to tracking or education

Score = 5: Chats and forums

Score = 1: Bookmarks/favorites, twin baby, photos, sound of baby, app use tutorial/demo, push notifications, social media connect, requires sign up, calendar access
Last Boob Used

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<tr>
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Last Five Feeds

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Remove Ads

Powered by Xamarin - Created by ChrisNTR
**Technology Scale**

**Score = 4:** Location (where to pump/feed)

**Score = 3:** Bluetooth, journal/diary

**Score = 2:** Assoc. product, sync, QR code, android and iOS, web responsive/reqs internet, video-capability

**Score = 1:** Songs, outsourcing information, backup, weather, passcode, only available as iOS, location (GPS)
You can change preference settings to fit your needs.

Preferences
- Link a cloud backend to back up records and synchronize records between devices. Use AirDrop or email to export a data clone to another device.
- Backup & Sync
- Export Data Clone
- Copy Photos to Camera Roll
- Export Data to CSV
- Frequently Asked Questions
- Email Support

If you enjoy using Baby Tracker, would you mind taking a moment to rate it? It won’t take more than a minute. Thanks for your support!

Rate Us

Add a new baby
- Export PDF data report
- Eve by Glow
  Our App For Your Period & Sex Life
  Download

- My Care Team Contacts
- My community profile
- My bookmarks
- Tell friends about Glow Baby
- Give Glow Baby 5 stars!

Glow Blog
Mamava Guided Meditation for Breast Pumping
Education Scale: Applying Social Cognitive Theory

10: In-person consult
9: Video consult
8: Phone call w/ specialist
7: Phone call w/ non-specialist
6: Text/email w/specialist
5: Chat with moms
4: Send question to specialist
3: Video
2: Picture
1: Text
## Education Scale: Evidence-Based and Customized

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<tr>
<td>Citation of peer-reviewed primary literature</td>
<td>Yes, customized to problem or end user</td>
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<tr>
<td>Writers with “degrees” or upvoted by community</td>
<td>&quot;WHO says...&quot;</td>
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<tr>
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Impaired Lactation

These conditions may cause long or short-term impaired lactation.

Causes and risk factors include:

- Maternal nipple anomalies
- Placental insufficiency
- Preterm deliveries
- Low progesterone
- Insufficient glandular tissue
- Illness of mother
- Retained placenta
Talk to board certified lactation consultants via video call. Access is unlimited, on-demand, and 24/7.

By creating an account, you agree to the Pacify Terms of Service and Privacy Policy.

Choose Your Plan

Each plan includes unlimited video calls with our board certified lactation consultants. No appointments. Connect instantly!

- 1 Month: $29
- 3 Months: $48
- 12 Months: $96

This is a one-time payment. Plans do not renew automatically.
Overview of Methodology

1. Develop a scale grounded in health education theory
2. Review every breastfeeding-related app on the market
3. Assign a score to each app or app category
Inclusion Criteria

• App must focus on breastfeeding.
• App has a star rating on the App Store.

Exclusion Criteria

• App did not have info about breastfeeding.
• App did not have a rating on the App Store.
• App was deleted or not available in the United States.
112 apps were identified & reviewed (LGC Founders, Anita Gunaseelan, Suhail Sidhu)

21 apps were excluded (2014–2016)

91 apps remained fit for review.

45 apps were excluded (2017)

20 free, 17 freemium, and 9 not free apps were reviewed. (n = 43)
General Characteristics of Apps*

Number of free apps: 20

Number of freemium-premium apps: 17

Number of “not free” apps: 9

Average Price: $3.32

Price Range: $0.99 to $4.99

*Some apps were not reviewed in this round because they did not have enough ratings on the app store. Ex. Breastfeeding Solutions or Infant Risk
Overview of Methodology

1. Develop a scale grounded in health education theory
2. Review every breastfeeding-related app on the market
3. Assign a score to each app or app category
What would you expect to find?
Figure 1. There were no significant differences in tracking capabilities between free, freemium, and not free apps.

Kruskal-Wallis chi-squared test = 1.1754, df = 2,  p = 0.5553
Figure 2. There were no significant differences in technological capabilities between free, freemium, and not free apps.

Kruskal-Wallis chi-squared test = 4.2093  df = 2,  p = 0.1219
Figure 3. Breastfeeding apps rarely have evidence-based or engaging content
Are you surprised by the findings?
Now it’s your turn.

1. Turn to the worksheet in front of you.
2. Look at the screenshot(s) (~30 seconds).
3. Assign points to the screenshot(s) using the worksheet.
4. Discuss in small groups.
5. Discuss all together.
Breastfeeding Tips: A comfortable latch

- Position your baby at the breast so that the nose is directly across from your nipple.
- Aim your nipple up with your thumb so that it is pointing to the roof of the baby’s mouth, not down.
- Touch the baby’s lips with your breast.

Baby 411 • Jan 25, 2016 • Baby 411 is America’s most-trusted source for expert advice.

Source: La Leche League International

324 Likes 2 Shares
TODAY at a glance

Don't trash your car
Put a small trash bag in your car to contain any baby debris - think diapers - as well as other garbage. When you leave the car, grab the bag and put it in a nearby trashcan.

Catch up on cleaning
Pre-treated cleaning wipes that work on multiple surfaces (granite, wood, metal etc) can be a great tool to help you clean areas around the house quickly while Bro takes a nap.

Play with baby's feet
A game, like This Little Piggy, can make putting on socks and shoes, or changing a diaper, more fun.

BREAKING NEWS

Today's a new day!
Congratulations!
You have successfully completed the Breastfeeding Confidence Assessment.

As you can see, your self-assessment reflects some low scores. No worries! Here is some information that may help you learn a bit more about these topics and boost your confidence.

Question 1

Size of Baby's Stomach

Grandparent's Guide to Breastfeeding - Tips to Share to Help Build Support

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Frequency of Breastfeeding and Pumping
You've tracked less than 8 breastfeeding and pumping sessions in the last 24 hours. Did you forget to record a nursing or pumping session?

Great job Anna!
First 1 day, then 1 week, now 1 month. Way to go!

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Additional Resources:

http://www.medelabreastfeedingus.com/terms-and-conditions
Note: Calling 800-986-8800 eventually will lead to a 3rd party-company that, usually, provides wellness and lactation support to employees. They do not work for Abbott/Similac. On staff are two “CLC/equivalent” and an IBCLC.” For questions about formula, the lactation staff at the 3rd party-company refer mothers back to Abbott/Similac.
4 Months

By giving nothing but your breastmilk for the first four months you have given your baby strong protection against ear infections and respiratory tract diseases for a whole year (American Academy of Paediatrics; Tufts-New England Medical Center Evidence-Based Practice Center; Duncan B et al).

By breastfeeding for at least 4 months you have reduced your baby’s risk of SIDS (Mother & Baby).

By now you have overcome early obstacles such as engorgement, sore nipples, and marathon cluster feedings. Nursing is becoming so much easier than bottle-feeding.
Search Term: **Accuneb**  
Drug Name: **Albuterol**  


frequently, you are unable to identify swallowing or he is not producing enough wet diapers and bowel movements, contact your health-care provider or lactation consultant immediately. Also, keep in mind that it’s common to experience some discomfort during the first few minutes of breastfeeding. However, your nipples shouldn’t hurt throughout the entire feeding. If they do, it’s likely that your baby isn’t latching on properly. If your baby is latched correctly and you’re still experiencing pain after a few minutes, you should seek help. Most breastfeeding problems have simple solutions, but it’s important to get help sooner rather than later. Many pediatricians and hospitals have lactation consultants on staff – and may conduct regular breastfeeding classes. Your local department of health may also have a referral service.

You and your baby were made to breastfeed. Have confidence in yourself and your baby’s ability, and treasure this natural bonding time.

Nursing is natural, but it helps to learn as much as possible before you start.

By Judith A. Lothian, Rn, PHD, LCCE, FACCE
What did you like about this scoring system?
What was challenging about the scoring system?
How would you improve the scoring system?
Conclusion

Lot’s of research and data analysis left to do!

*Up ahead:*

What makes an app “look good” and does design matter to moms?

Does it matter who develops the app? Public health department vs for-profit vs breast pump company vs individual?

Should sustainability of the business model be an important factor in our analyses?
Thank you!
For questions and comments, please, contact Anna Sadovnikova:
anna@liquidgoldconcept.com
References


