Look to the Future and SMILE: Feasibility of Interactive Voice Assistant (VA) Technology to Support Maternal Infant Health

Emre Sezgin PhD¹, Lisa Militello PhD², Yungui Huang PhD MBA¹, Simon Lin MD MBA¹

¹ The Abigail Wexner Research Institute, Nationwide Children's Hospital, Columbus OH. ² College of Nursing, The Ohio State University, Columbus OH.

Background

Both maternal and infant mortality rates serve as indicators of population health and are unacceptably high worldwide. Ohio has the 7th worst infant mortality rate in the U.S. Voice assistant (VA) technologies present a potential new modality to support maternal infant health.

Objectives

We developed an interactive VA intervention app (Stress Management Intervention Life Essentials- SMILE) to deliver brief, maternal-infant education and management skills (e.g. perinatal care, stress management, breast feeding, infant-care) using evidence-based content.

The objective of the study is **to understand the feasibility and usability of an interactive VA intervention to support maternal and infant health among a group of pregnant women.**

Methods

- A **mixed** methods study design
- Pregnant women were recruited through NCH, completed a baseline demographic and technology-use survey and were asked to use SMILE over the course of **2-weeks**.
- SMILE was available on App Store and only accessible with passcode. After consent review and tutorial, they start immediately accessing the content.
- Interviews were conducted to get feedback regarding thoughts and attitudes towards VA technology to support the health of mothers and infants.
- Descriptive analysis was used to summarize survey responses and app use logs. Qualitative methods was used to analyze interview data and transcriptions of voice recordings collected from SMILE.

Survey Results

- **19** participants completed baseline surveys and used SMILE.
- **12** (~63%) participated in exit interviews.
- 25-34 years old (n=16, 84%), part of a two-parent household (n=19, 100%), white (n=15, 79%), pregnant with their first child (n=12, 63%).
- 9 participants (47%) practice stress management, and favorable stress-management activities - **exercising, yoga, and outdoor** activities without technology involvement.
- 10 (53%) reported using technology to support pregnancy self-management.
- Prefer mobile apps for education and self-management support during pregnancy and Internet to access health-related information.
- 11 reported using default VAs on their phone (58%) and on a smart speakers (n=10, 53%).
- VA technology was mainly reported as being used for **basic tasks** - timer or reminder, checking the weather, turning on/off the lights, or playing music.

Interview Takeaways

- VA is a potential medium for receiving health information, pregnancy-related information, and could be a strategy to engage other **family members** in the process.
- Major **concerns** revolved around security, privacy, trust regarding interacting via voice when in public.
- Husbands are the drivers of voice technology at home

Conclusion

Although this research is limited by the small and predominantly white sample size, this research represents **one of the first studies** to explore perceptions and attitudes towards VA to promote maternal-infant health.

While VA technology offers some benefits (e.g. **reduce literacy barriers**, hands-free), **familiarity and trust of non-voice digital health tools** (e.g., mobile apps, web-based content) remain important in supporting maternal-child health.

Please scan the QR code for further reading at HIMSS and references about our project and impact on maternal infant health

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