Voices from the Mobile WACh NEO Trial: Insights into a Digital Health Intervention for Newborn Care

Makayla Hickmon[1], Jenna I. Udren, MPH[4], Brenda Wandika[4,6], Anna Hedstrom[5], Peninah Kithao[6], June Moraa[6], Dalton C Walmalwa[7], Keshet Ronen[4], John Kinuthia[6], Jennifer Pellowski, PhD[1], Jennifer Unger, M.D.[1,2,3]

[1]Brown University, RI, [2]Warren Alpert Medical School of Brown University, RI, [3]Women and Infants Hospital of Rhode Island, [4]University of Washington, WA, [5]Seattle Children's Hospital, [6]Kenyatta National Hospital, Nairobi, Kenya, [7]University of Nairobi, Nairobi, Kenya

Overview

Through post-trial interviews, this secondary qualitative analysis examines the perspectives of participants enrolled in the SMS communication arm of Mobile Solutions for Women and Children's Health NEO (MWACh NEO), a Kenya-based mHealth randomized controlled trial.

Background

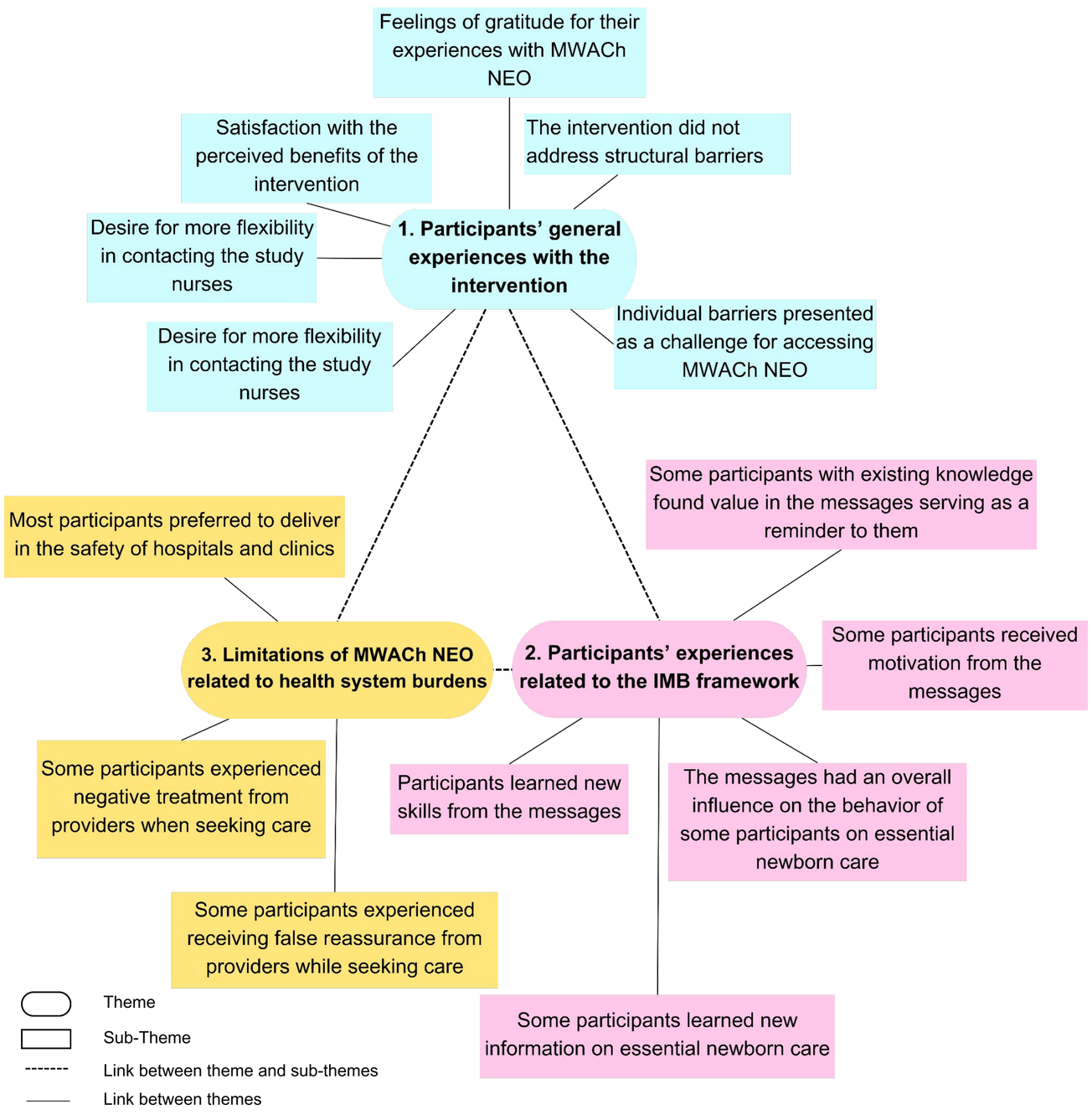
- Individuals in low and middle-income countries (LMICs) face major obstacles in accessing healthcare services.[1,2,3]
- Mobile health (mHealth) interventions are cost-efficient and have been shown to expand healthcare service availability by connecting patients to healthcare workers.[4,5]
- The Mobile Solutions for Women's and Children's Health NEO (MWACh NEO) program allows for SMS communication between women and healthcare providers during the peripartum period, and automated education, and support messages based on the health behavior framework, Information-Motivation-Behavioral Skills (IMB) Model.[6,7]
- A randomized-controlled trial was implemented to determine whether text messaging communication improved the mother's knowledge, skills, and motivation to prevent, identify, and seek care for neonatal illness, reducing neonatal mortality.[6,7]

Study Design

- **Setting:** Six healthcare facilities within two primary locations, Western Kenya and Nairobi, Kenya.
- **Eligibility:** Pregnant women over 14 years of age, at 28-36 weeks gestation, enrolled in antenatal care, and had daily access to a mobile phone.
- **Sampling:** Based on engagement with the text message intervention (low, medium, high) and infant outcomes (liveborn infant, infant hospitalization or death).
- **In-depth interviews** (IDIs) were conducted with participants (aged 20-43) after completing the intervention to investigate experiences during the program (n=55).
- **Coding:** 3 coders used an *a priori* codebook
- **Thematic analysis** was employed to identify themes and patterns. (3 reviewers/readers).

Results

Figure 1. Thematic map of themes and sub-themes



Summary of Themes	
Theme	**Theme Description**
General Experiences with Intervention	Conceptualizes participants' positive/negative experiences with the the intervention, including access to the intervention.
"I am very satisfied because I like the educational messages that they do send. I also like the fact that I can personally talk to the nurse when I have problems and they would advise me appropriately…" – age 28, married	
Experiences related to the IMB Framework	Conceptualizes participants' experiences with the IMB framework such as information, motivation, and behavioral skills gained and acquired from the SMS.
"Like the one that was talking about breastfeeding, the one that talked of observing proper hygiene each time that I wanted to breastfeed her and the kind of foods that I needed to eat so that I could have enough milk. The messages also taught me not have any stress as that would make me not to produce enough breast milk." – age 40, married	
Limitations of MWACh NEO related to health system burdens	Conceptualizes participants' positive/negative experiences with the healthcare system upon receiving advice to seek care from the SMS.
"The doctor was too harsh and had no pity. He would push me around with no remorse and also when I delivered, the manner in which he wiped the baby, never seen such. I had given birth to two children, they offered good services, but in that hospital it was different. I was left nursing a lot of pain in the inside, that doctor was not nice to me." – age 27, married	

Conclusion

- SMS communication interventions provide useful information, offer social support, and the ability to learn new skills in peripartum and newborn care.
- mHealth is often designed to promote demand generation. More research is needed on the integration of mHealth interventions with broader, structural-level optimizations to enhance maternal, neonatal, and child health outcomes within the health care setting.

Key References

1. Girum, Tadele, and Abebaw Wasie. "Correlates of Maternal Mortality in Developing Countries: An Ecological Study in 82 Countries." *Maternal Health, Neonatology and Perinatology* 3 (November 7, 2017): 19. https://doi.org/10.1186/s40748-017-0059-8.
2. Arunda, Malachi, Anders Emmelin, and Benedict Oppong Asamoah. "Effectiveness of Antenatal Care Services in Reducing Neonatal Mortality in Kenya: Analysis of National Survey Data." *Global Health Action* 10, no. 1 (January 1, 2017): 1328796. https://doi.org/10.1080/16549716.2017.1328796.
3. Yan, Tingting, Luke C. Mullany, Seema Subedi, Elizabeth A. Hazel, Subarna K. Khatry, Diwakar Mohan, Scott Zeger, James M. Tielsch, Steven C. LeClerq, and Joanne Katz. "Risk Factors for Neonatal Mortality: An Observational Cohort Study in Sarlahi District of Rural Southern Nepal." *BMJ Open* 13, no. 9 (September 1, 2023): e066931. https://doi.org/10.1136/bmjopen-2022-066931.
4. Lassi, Zohra S., Rehana A. Salam, Jai K. Das, and Zulfiqar A. Bhutta. "Essential Interventions for Maternal, Newborn and Child Health: Background and Methodology." *Reproductive Health* 11, no. 1 (August 21, 2014): S1. https://doi.org/10.1186/1742-4755-11-S1-S1.
5. Skinner D, Delobelle P, Pappin M, et al. "User Assessments and the Use of Information from MomConnect, a Mobile Phone Text-Based Information Service, by Pregnant Women and New Mothers in South Africa | BMJ Global Health." Accessed June 10, 2024. https://gh.bmj.com/content/3/Suppl_2/e000561.
6. Unger, Jennifer A., John Kinuthia, Brenda Wandika, Anna Hedstrom, Erica Wetzler, Jenna I. Udren, Millicent Masinde, et al. "The Impact of Interactive Text Communication on Neonatal Mortality in Kenya: A Randomized Controlled Trial." *Nature Medicine*, March 12, 2025, 1–8. https://doi.org/10.1038/s41591-025-03576-z.
7. Ronen, Keshet, Esther M. Choo, Brenda Wandika, Jenna I. Udren, Lusi Osborn, Peninah Kithao, Anna B. Hedstrom, et al. "Evaluation of a Two-Way SMS Messaging Strategy to Reduce Neonatal Mortality: Rationale, Design and Methods of the Mobile WACh NEO Randomised Controlled Trial in Kenya." *BMJ Open* 11, no. 12 (December 1, 2021): e056062. https://doi.org/10.1136/bmjopen-2021-056062.**r**