Increasing Demand for Mobile Health Technologies to improve Reproductive, Maternal, and Newborn Health

Insights from Low- and Middle-Income Countries

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March 9, 2016
ICT & RMNCH: Background:

- Positive potential impact of mobile technologies
- Addressing many RMNCH disparities
  - Access
  - Information
  - Quality of care
- Mobile phone digital divide
- Need to improve access, demand, and utilization
  - User capacity
  - Financial barriers
  - Value-added to consumers
Lessons Learned: Case Studies

- Recognizing gender dynamics (Global)
- Minimizing disparities and inequities (Nigeria)
- Integrating personalized features (Kenya)
Literature Review (Global):

• **Aim:**
  ◦ To examine evidence of changes in men and women’s interactions as a result of mHealth interventions.

• **Inclusion criteria:**
  ◦ Published in English from 2002 to 2012 in a LMIC; included an evaluation of a mobile health intervention; and presented findings on resultant dynamics between women and men.

• **Search strategy:**
  ◦ 4 electronic bibliographic databases
  ◦ Manual review of the reference lists
  ◦ Review of websites with recent mHealth publications.

• **Rigor:**
  ◦ Abstracted data on the studies characteristics with iterative thematic analyses regarding gender-transformative and non-transformative experiences.
Systematic Review Summary:

- **Analytical Sample:** Out of the 173 articles retrieved for review, 7 articles met the inclusion criteria and were retained in the final analysis.

- **Study Characteristics:**
  - SMS-based and conducted in sub-Saharan Africa
  - Addressed HIV/AIDS, sexual and reproductive health
Key Findings: Gender Dynamics - LMICs

- Mobile phone programs can influence gender relations in meaningfully positive ways:
  - By providing new modes for couple’s health communication
  - By improving women’s social status and access to information
  - By enabling greater male participation in health areas typically targeted towards women

- Positive gender dynamics can increase demand of mobile health strategies and ICT interventions for RMNCH

- However, negative gender dynamics may hinder demand for ICT strategies.
  - Programs by design may inadvertently reinforce the digital divide
  - Domestic disputes and lack of spousal approval hampered women’s participation
  - Perpetuate existing gender-based power imbalances (i.e., greater engagement by men, phone stalking, reliance on financial support)
Population-based Study (Nigeria):

- **Background:** Mobile communication technologies may reduce maternal health disparities related to cost, distance, and infrastructure.
  - However, accelerating maternal health goals through ICTs requires, in part, that most vulnerable women have access to mobile phones.
- **Aim:** To examine if women with limited mobile phone access have differential odds of maternal knowledge and RMNCH service utilization.
- **Methods:** Multivariable logistic regressions using survey data from n=3,390 women, aged 15-49, out of 10,107 households.
Findings: Decreasing Inequity, Nigeria

- **Results**: In settings with unequal access to mobile phones, mHealth interventions may not reach women who have the poorest maternal knowledge and care-seeking as these women often lacked mobile connectivity.

- **Empirical Data**: As compared to mobile users:
  - Women without mobile phone access had significantly lower odds of antenatal care utilization (OR = 0.48, 95% CI: 0.36–0.64), skilled delivery (OR = 0.56, 95% CI: 0.45–0.70), and modern contraceptive use (OR = 0.50, 95% CI: 0.33–0.76).
  - Mobile-less women also had significantly lower knowledge of maternal danger signs (OR = 0.69, 95% CI: 0.53–0.90) and knowledge of antenatal (OR = 0.46, 95% CI: 0.36–0.59) and skilled delivery care benefits (OR = 0.62, 95% CI: 0.47–0.82).
Qualitative Exploration (Kenya):

- **Background:** Community-based mHealth programs can complement gaps in clinical services for prevention of mother-to-child transmission (PMTCT) of HIV in areas with poor infrastructure and personnel shortages.
- **Aim:** To examine what specific content and forms of mobile communication would be acceptable to support PMTCT.
- **Methods:** Focus groups and in-depth interviews were conducted in Nyanza Province, Kenya (N= 45 HIV-positive women enrolled in PMTCT).
- Elicited participants’ current mobile phone use for PMTCT and their views on optimal mHealth platform design and messaging.
Findings: Tailored mHealth Components

- High phone access and spousal mobile sharing
- Benefits of mobile phones for PMTCT included linking with health workers, protecting confidentiality, and receiving information and reminders.
- Greater emphasis on gender-tailored SMS that responded to strengths and barriers to PMTCT for men versus women
  - Pride within the community (men)
  - PMTCT compliance was cost-effective over time (men)
  - Desire to ensure newborn’s health (women)
  - You’re not alone, keep going! (women)
- Informative messaging relayed safely to the intended recipient was critical.
- Demand generation greatest if link with in-person counseling
Conclusions:

- Increasing access and demand for mobile health strategies is a critical strategy for improving RMNCH.

- Likely most successful approaches are those that:
  - Build positive gender relations within couples
  - Respond to unique, gendered needs
  - Improve access among women who lack connectivity
  - Empower women with training, resources, and functionality for engaging in mHealth interventions
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