mHealth research across Australia and Bangladesh

Shahriar Akter
Fatema Khatun
Quality Dynamics of mHealth in Developing Countries
Why mHealth in Developing Countries?

An assessment of primary health care indicators

<table>
<thead>
<tr>
<th>Countries</th>
<th>Infant Mortality rate (per 1000)</th>
<th>Maternal Mortality (per 10,000)</th>
<th>Hospital beds (per 10,000)</th>
<th>Total Health workers (per 10,000)</th>
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- mHealth is transforming healthcare delivery in developing countries by providing affordable services in an efficient manner (UN foundation & Vodafone foundation, 2009).

- At present, there are more than 5.5 billion mobile connections in the world and most (60% +) in developing countries (Ivatery et. al. 2009).

- There are 51 mHealth programs that are being operated in 26 developing countries around the world.
Research Setting of the Study: mHealth hotline

- Back office of Health Service Provider
  - Database of medical information
  - Database of patients records
  - Software for call routing, monitoring, tracking etc.
  - Privacy of information

- Back office of Network Operator
  - Network coverage
  - Network stability
  - No network congestion etc.

- Service provided by Health Professionals
  (live health Service on 24/7)

- Interpersonal Interaction
  - Between Physicians and patients

- Health service received by patients

- Medical services over mobile platform
  - Medical Information, consultation, Treatment, Triage, Diagnosis, Referral and Counseling.

- Access by dialing ‘789’ from your Mobile Phone

- Call charge is 21 cents for 3 minutes.
- Nearest GP charges $3 per visit.
- 24 million + customers in Bangladesh

Source: Akter et al. (2010), Akter & Ray (2010)
## Service Quality Challenges

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<thead>
<tr>
<th>Service Delivery Challenges</th>
<th>IS challenges</th>
<th>Wireless Network challenges</th>
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<tbody>
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<td></td>
<td>• Database of facilities and standardized drug information</td>
<td>• Network stability, network coverage, network congestion etc.</td>
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<tr>
<td></td>
<td>• Database of electronic health records for callers</td>
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<tr>
<td></td>
<td>• Call answering and routing capacity</td>
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<tr>
<td></td>
<td>• Call monitoring and tracking capacity</td>
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<td></td>
<td>• Privacy &amp; security of patients’ information</td>
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<tr>
<th>Interpersonal Communication Challenges</th>
<th>Health Professionals &amp; patients</th>
<th>Individual, Organizational &amp; Social</th>
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<td>• Competence, credibility, courtesy, knowledge, customization, etc.</td>
<td>• satisfaction</td>
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<td></td>
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<td>• Value</td>
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<td>• Continuance</td>
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Research Questions

RQ 1: What are the dimensions of *service quality* of mHealth Service?

RQ 2: Is there any impact of *service quality* on *value, satisfaction, continuance and quality of life* in this context?
Theoretical Framework: Interdisciplinary Research

Marketing

Health Services

Information Systems
RQ 1: What are the dimensions of service quality of mHealth?

Findings in top outlets:
Akter et al. (2013), Information & Management.
Akter et al. (2010), Electronic Markets.
RQ 2: Is there any impact of service *quality* on *service outcomes*?

Findings in top outlets:

Akter et al. (2013), *Behaviour & IT*
Akter et al. (2011), *Journal of the American Society for Information Science & Technology*
2012
Collaboration between icddr,b and UNSW (APuHC & SPHCM)

1. An Assessment of Community readiness for mHealth intervention in rural Bangladesh
2. Call Centre establishment
3. mHealth application for maternal and child health
Why Community Readiness?

- Acceptance of new interventions in the target population is important.

- Readiness is one of most important factor of eHealth. ‘Readiness can be defined as the degree to which a community is prepared to participate and succeed in telehealth and its cognitive precursor to behavioural resistance to, or support for, change’ (Jennett et al. 2003)

- Little is known about community readiness for mHealth.
Research Question:

How ready is a rural community in Bangladesh for mHealth?

Sub questions

- What is the current pattern of mobile phone ownership and uses in rural Bangladesh?
- Is the level of education or socioeconomic status related to mobile phone use? What is their perception of usefulness of mobile phones for health care?
- What are the opinions of community leaders and health care providers regarding the potential of the mHealth for health care?
- Compared to current system, how do stakeholders (health care professionals and administrators) perceive the characteristics of the mHealth and its implementation in rural Bangladesh?
Methods: Study site

- Chakaria upazilla under Cox’s Bazar district of Bangladesh
- ICDDR,B field site
- Health and Demographic Surveillance Systems (HDSS) since 1999 covering
- Population-140,738
- Households- 21,000
Study design

Mixed methods

- **Qualitative: In-depth interviews**
  - Students or youth, housewives, farmers or small businessmen, teachers, community leaders, and health care providers
  - Purposive sampling, sample size 38

- **Quantitative: Survey**
  Number of Households 21,000
  Availability mobile phone 65%
  Sample size 4900
Readiness framework

Community readiness

- Core readiness
- Technological readiness
- Motivational readiness
Establishment of a call centre in Chakaria field site, Bangladesh

mHealth Platform

- Research
- Routine DSS data collection
- Primary healthcare
Primary healthcare delivery through mobile phones

Model

- Icddr,B
- SMS Gateway
- Tracking Databases
- PBX (Phone Ex)
mHealth application for Maternal and Child Health

- What is the perception of the Community Health Workers (CHWs) about mobile based application for Maternal and Child health and what is their level of willingness to use mHealth applications?
- What type of healthcare tasks can be performed by CHWs (Data collection, patient monitoring and link with other service provider) using mobile applications?

To know the perception and willingness of the Community Health workers (CHWs)
- Develop Mobile Application for maternal and child health services
- Enrolment and Training of CHWs
- Usability test of the mobile application
- Acceptability of CHWs
Acknowledgement

- AusAID
- UNSW
- icddr,b
Thank You