Future Health Systems
Innovations for equity

FHS
Research Brief
December 2013
6

Knowledge of, Attitude towards, and Use of mHealth Services in Chakaria, Bangladesh

Bangladesh has a serious shortage of physicians, paramedics, nurses, and midwives. The available qualified care providers are centred in urban areas, resulting in an inequitable access of the rural and disadvantaged sections of the population to healthcare. Under these circumstances, the use of mHealth meaning provision of healthcare services through mobile devices provides a new opportunity to ensure access to quality healthcare services for the population in general, and for people from poorer sections and hard-to-reach areas in particular. There are currently around 20 mHealth service initiatives in the country which are mostly telephone hotlines for consulting physicians and/or obtaining healthcare information. Effectiveness of these services depends on the evidence-informed development of appropriate programmes designed around people's perceptions of mHealth and user feedback. To that end, FHS Bangladesh partner, ICDDR,B recently conducted a survey on mHealth in Chakaria, a rural area in the southeast coastal area of Bangladesh. This brief presents the findings from this survey.

Interview session

Credit: Shahidul Hoque

UKaid
from the British people

icddr,b

Survey details

The study was carried out in eight Unions, lowest level of civil administration, of the Chakaria *Upazila* (sub-district), which is located in the Cox's Bazar district in the southeast costal area of Bangladesh. ICDDR,B has been running a Health and Demographic Surveillance System (HDSS) here since 1999. The surveillance covers 118,335 residents living in 20,124 households. A total of 2,188 male and 2,964 female respondents aged 18 years and above were randomly selected from 20,124 households in the Chakaria HDSS area. A total of 4,915 respondents (1,964 male and 2,951 female), one from each household, were interviewed in the survey conducted during November 2012 to April 2013. Although almost an equal number of males and females were targeted for interview, many of the males could not be contacted despite repeated visits, as they were away during the daytime. The survey included collection of data on background characteristics of the respondents including socioeconomic status of the household, ownership of mobile phones, knowledge about the use of mobile phones for healthcare, various mHealth services, cost of healthcare, preferences

between physical visits and telephone consultations, attitudes toward mHealth services, satisfaction with healthcare consultation through mobile phones.

Ownership of mobile phones

Eighty-one percent of the 4,915 households included in the survey had at least one member owning a mobile phone, a forty fold increase from 2004. About half (45%) of the respondents reported that they owned at least one mobile phone. Perhaps unsurprisingly, the ownership of mobile phones was higher among males, younger age-groups, people from richer households, and more educated persons. (see Figure 1 and 2). Ninety nine percent of the households from the highest asset quintile owned a mobile phone compared to 43% from the lowest quintile.

Figure 1. Percentage of households with atleast one member owning a mobile phone

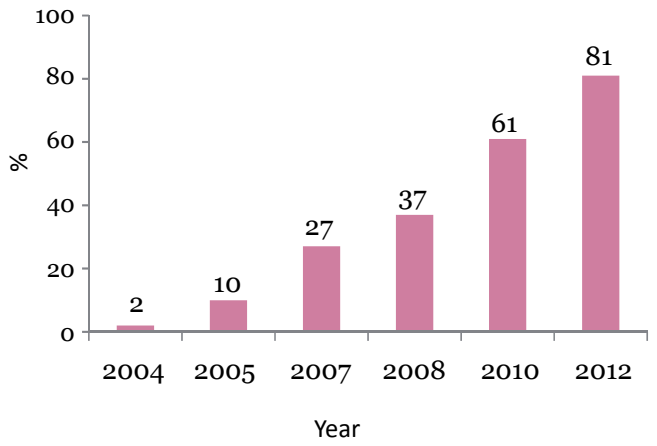
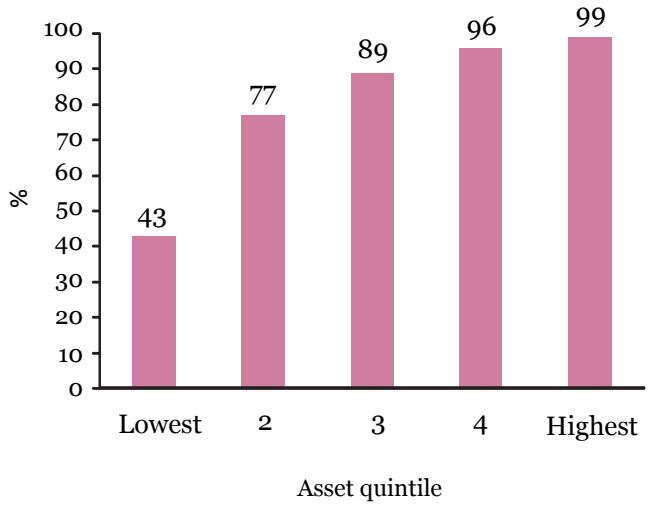


Figure 2. Percentage of households with at least one member owning a mobile phone by asset quintiles, Chakaria, Bangladesh 2012



Knowledge of the use of mobile phone for healthcare

Thirty-one percent of the respondents reported that they knew that mobile phones are being used for consulting physicians. This knowledge was higher in males (39%) than in females (26%). Among the respondents who knew about the use of mobile phones for healthcare, only 1% knew about health hotline/call centres. Respondents perceived that the more educated and knowledgeable persons tend to use mobile phones for healthcare as compared to the less-educated and uninformed people (see Table 1).

Table 1 Awareness about the use of mobile phone for healthcare services

Nature of awareness	Number of respondents	% aware
Mobile phone can be used for obtaining healthcare services	4915	31.3
Possible uses of mobile phone in healthcare		
Direct consultation	1238	79.9
Appointment	174	11.8
Knowing availability	67	4.6
Clarification about prescription	48	3.2
Requesting home visit	8	0.5
How people use mobile phone for healthcare		
To call MBBS doctor	1063	69.5
To call village doctor	419	27.4
To call helpline	14	0.9
ICDDR,B paramedics	7	0.5
Others	25	1.4
Perception about who uses healthcare services		
Educated/knowledgeable	666	44.2
Has connections with healthcare providers	360	24.0
Upper class	170	11.0
Middle class	80	5.3
Lower class	74	4.5
Employed/busy people	41	2.3
All types of people	119	7.9
Others	29	1.8

Knowledge of the existing mHealth services

Very few people were aware of the types of services available through mobile phone from the Upazilla Health Complex (UHC), one of the recent initiatives of the government or from call centres for healthcare. Males, younger age-group, higher-educated, and those from richer households were more knowledgeable about the types of existing mHealth services compared to females, those who were over 50 years of age, those who had no

education, and people from poorest households (Table 2).

Table 2 Knowledge of types of the existing mHealth services			
Variable	No. of respondents	% calling any special No.	% calling any UHC
Existence of any mHealth Services	4915	3.9	5.0
Sex*			
Male	1964	7.0	7.5
Female	2951	1.7	3.2
Age*			
<30	1791	6.7	6.3
30-39	1344	3.4	4.3
40-49	794	2.1	6.3
50+	986	0.7	2.3
Education (years of schooling)*			
None	2335	1.4	2.7
1-5	1462	2.1	4.7
6+	1112	11.2	11.8

* -P<0.001

Use of the existing mHealth services

Eleven percent of the total respondents who knew about mHealth services called a special numbers/ call centres to seek treatment, and not a single person used the mHealth services provided by Upazila Health Complex. Males and those from the richest households reported seeking mHealth services more than the females and those from the poorest households. However, educational level of the respondents did not make any difference.

Use of mobile phone and mHealth services for healthcare during recent sickness

Thirty-eight percent of the household members had fallen ill during two weeks preceding the survey. Forty-seven percent of those who were sick contacted a healthcare provider for their sickness. Just two percent of the patients who contacted a healthcare provider made the consultation through mobile phone instead of a face-to-face visit. The use of mobile phone was more for female patients (2%) than male patients (1%) in all age-groups. The use of mobile phones was the highest for contacting village doctors (58%), followed by MBBS doctors (36%), ICDDR,B doctors and paramedics (4%), and homoeopaths (2%).

Cost of healthcare: face-to-face consulation versus mHealth

Average cost of treatment per patient, based on all the patients (totaling 2,581) who sought care, was Taka 382. The cost was higher for male than female patients (Taka 429 vs Taka 340), lower for younger than older ones (Taka 240, Taka 275, and Taka 455 for under-five chilfren, those aged 6-17 years and ≥18 years respectively) and higher for face-to-face consultation than consultation using mobile phone (Taka 386 versus Taka 182).

Compliance with prescription

Of the 2,581 patients for whom a face-to-face contact with a healthcare provider was made, 71% had received advice for drugs. Eighty-seven percent of those who received advice for drugs bought all the drugs, 12% bought some, and 1% did not buy any. Of those who contacted a provider through a mobile phone, 68% had received advice for drugs. Of them, 88% bought all the drugs and 12% did not buy all of the drugs. Sixty-four percent of the patients who consulted using a mobile phone took all the prescribed drugs compared to 76% of those who had face-to-face consultations.

Intention to use mHealth services

Twenty-nine percent of the respondents expressed an intention to use mHealth in the future. Males, more educated, and people from richer households intended to use mHealth in the future more than females, those with no schooling, and those from poorer households (Table 3).

Table 3 Intention to use mHealth in the future		
Intention to use	No. of respondents	%
Has intention to call in the future	4081	28.5
Sex*		
Male	1729	33.6
Female	2352	24.6
Education (years of schooling)*		
None	1791	21.6
1-5	1271	27.1
6+	1013	42.4
Asset quintile*		
Lowest	744	17.6
2	796	23.4
3	832	26.7
4	833	30.8
Highest	876	41.7

* - P< 0.001

Reasons for using mobile phone for healthcare

Thirty percent of the respondents wanted to use mobile phone for seeking healthcare because they perceive it to be of low cost, followed by time-saving

(24%), instant treatment (18%), known doctor (10%), severity of disease (8%), no transportation cost (6%), and other reasons (4%).

Reasons for not using mobile phone for healthcare

Forty-one percent of respondents reported that they do not want to use mobile phones for healthcare because they think direct consultation is better, followed by not knowing which number to call (22%), not being able to explain symptoms over phone to a doctor (13%), not feeling the need to use mobile phone as the doctor's chamber is nearby (9%), not having ideas about availing healthcare through mobile phone (5%), and perceiving that mobile phone consultation cannot replace physical examination (3%).

Conclusion

The high penetration of mobile phone into the society, even among rural communities, provides a unique opportunity to use the mHealth technology for taking healthcare to the people in general and the ones with difficulty in accessing the services involving a physical visit to a physician in particular. Knowledge of the existence of mHealth services is low. It is a prerequisite that knowledge be universal to ensure exploitation of the full potential of the services.

Low cost and round-the-clock access to mHealth services, as understood by the community members, are positive factors in favour of mHealth.

It was encouraging that the compliance with the prescriptions in terms of purchasing of the drugs and their utilization are almost similar for advices received through mobile phone and physical visits. One-third of the respondents expressing intention to use in the future, given the early stage of the development of mHealth, is clearly an indication of prospect of mHealth in this society.

Finally, the study revealed clear indications that the society is looking forward to using the mHealth technology. However, its success will depend on the quality of services, cost, broadening of the service components, which is possible with the recent introduction of 3G, and institutionalizing the regulatory oversight.

Related readings

ICDDR,B (2013) Use of mHealth to improve quality of services of the village doctors: Recent learning from Chakaria, Bangladesh. ICDDR,B: FHS Research Brief No. 5.

Acknowledgements

Bangladesh FHS team gratefully acknowledges the support of the members of FHS consortium in carrying out the research on which this brief is based. Editorial assistance from Abdur Rahim and Jeff Knezovich is also gratefully acknowledged.

Future Health Systems is a Research Programme Consortium supported by the UK Department for International Development. Partners are Johns Hopkins Bloomberg School of Public Health, USA; China National Health Development Research Center; icddr,b, Bangladesh; Indian Institute of Health Management Research; Institute of Development Studies, UK; Makerere University School of Public Health, Uganda; University of Ibadan, Nigeria.

FHS research briefs on Bangladesh activities are published by the country team of the Future Health Systems Research Programme Consortium, Centre for Equity and Health Systems at icddr,b, Dhaka, Bangladesh.

For further information on Future Health Systems research in Bangladesh, contact Abbas Bhuiya, Leader, Bangladesh country team, Future Health Systems at abbas@icddrb.org. To subscribe: www.icddrb.org/fhs/resbriefs. or contact Dr. Mohammad Iqbal at miqbal@icddrb.org.

Chakaria field site is a member of INDEPTH

This document has been funded by the UK Government. However, the views expressed herein are those of the authors and do not necessarily reflect those of the UK Government or the partners in the Future Health Systems research consortium.

Future Health Systems
E: fhs@jhsph.edu
T: @futurehealthsys
W: www.futurehealthsystems.org