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CASE STUDY

MOBILE TELEPHONE INTERACTIONS AND PERSPECTIVES IN THE HEALTH SECTOR OF RURAL BENGAL OF INDIA

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Abstract

This study, conducted in Karea village (Daskalgram- Karea II) under Bolpur sub-division of Birbhum district, aimed to assess how mobile telephony is impacting delivery and availability of healthcare services. Given that the village has previously had issues with healthcare support system, it emerged as ideal ground for this study. Employing survey, focus group discussion and interviews of varied stakeholders, this study found high mobile phone ownership in the village. Smartphone use is also not uncommon. People are using mobiles for healthcare purposes, but a large number is not doing so. They are using their phones for other purposes, but not really for healthcare. This underlines opportunity for healthcare workers and officials to encourage more villagers to use mobile phones for calling health support. Notwithstanding this, phones are being used by villagers to call for ambulances and doctors and get patients admitted into hospitals. Workers and officials are also using phones to spread awareness about health issues and health-related programmes. More awareness-building initiatives about use of mobiles for availing healthcare services, need to be undertaken which can make beneficial impact on ground.

Keywords: digital divide, poverty, marginalisation, technological inaccessibility

Introduction

Since 2002 there has been a surge in mobile subscriber base and corresponding fall in fixed line telephone subscriber base (Gruber and Koutroumpis, 2011). A Pew Research Center report (2019) estimates that currently 5 billion people globally owns a mobile ownership, of which half own a smartphone. However, the rate of adoption of mobile telephony has not been universal among countries and also within countries. Residents of advanced economies have demonstrated higher propensity of mobile ownership, specifically

smartphone ownership. High internet usage was also recorded among people of these countries, alongside social media use (Pew Research Center 2019). But in emerging countries, trends of both mobile adoption and internet usage were found to be lower in comparison. The report further states that survey of 18 advanced economies revealed 76% people using smartphones, which stood at just 45%, in the context of surveyed developing economies (Pew Research Center 2019). Wireless connectivity, enabled by mobile internet, has enabled increased adaptability in communication, exchanging of knowledge and collaboration (Amaghionyeodiwe and Annansingh-Jamieson, 2019). Businesses are also benefitting from increased adaption of mobile telephony and use of mobile internet in terms of improved productivity, wider avenues of growth, effective cost reduction, quicker response to customer requirements and complaints and also opportunities for stronger customer engagement (Amaghionyeodiwe and Annansingh-Jamieson, 2019). Mobiles have reduced rate of unemployment as new career opportunities have sprung up (Kloneer et. al, 2010). Call centres, customer care centres, mobile retailing and mobile maintenance units are relevant examples. Connectivity and exchange of information facilitated by mobiles, is aiding farmers in increasing farm yield and profits (Beuermann, 2011).

Reflection of the above is noticeable in the Indian context. Till 1996, out of every 100 families less than two had mobile connections. Subsequently, number of mobile connections witnessed phenomenal rise (Bubna and Debnath, 2017). From less than one mobile connection per 100 individuals around 2001, the number of connections rose to 74 per 100 individuals (Bubna and Debnath, 2017). By 2010 number of mobile users recorded 75% growth annually. This was stimulated by reduced prices of mobile handsets, rationalisation of tariff structures and lower deposit amount requirements (Bubna and Debnath, 2017).

Fallout of mobile use growth has been beneficial across different sectors of the Indian economy. For example, the fishermen and fishing wholesalers of Kerala have been able to reduce product wastage and hike product prices significantly (Jensen, 2007). Earlier, Meera et al. (2004) too had noted that farmers are receiving market information, updating and verifying land records, learning about crop pest and disease control mechanisms and rural community targeted particular developmental programs due to mobile usage. According to Belakari et al. (2017), adoption of mobile technology is aiding Indian farmers by easing marketing of their produce, bridging the distance gap thereby reducing travel expenses and consistent inflow of relevant and practical information. Kissan Call Centers are relevant example, updating farmers with market, weather, farming techniques and other inputs (Belakari et al., 2017).

Problem Statement

Since studies highlight benefits of mobile telephony for the primary sector, understanding its effect on rural healthcare services emerges as an interesting proposition. This is because delivery of healthcare services in India faces myriad challenges. While the delivery of healthcare services is organised, available and accessible in urban areas, the situation is not encouraging in the nation's hinterland. Studies reveal low level of education among populace contribute to general lack of awareness about health and hygiene issues. Mothers have been found not to be well-versed in how to take care of themselves and their toddlers. Also access to healthcare facilities is not easy for those residing in rural areas that are separated from urban centres by significant distance, which hampers availability of medical aid when needed. Though there are primary health centres to deliver health services, their shagging infrastructure, shortage of skilled and trained manpower and unhygienic conditions have stroked apathy among villagers to seek treatment. But their offering of medical services at low or no cost, does benefit those not in a position to spend for urban centre healthcare. Unfortunately, patient experiences are not encouraging. That leaves villagers with few options to avail healthcare support during emergencies. With mobiles aiding farmers and fisherman enhance their livelihood, can healthcare sector benefit from its utilisation? Built on this, questions this research is guided by is as below.

Research Questions

1. What is the mobile ownership pattern in the selected village?
2. How are mobile phones being utilized by rural people to seek healthcare support?
3. How is mobile telephony being utilized by healthcare service providers to improve quality of healthcare delivery?

4. How is information, made available through mobile, aiding rural population in overcoming health challenges?

Literature Review

Mobile and Healthcare

Chauhan (2011) points that in developing nations like India, spread of infectious diseases poses a serious health issue. Huddart et al (2018) notes India's tuberculosis caseload being 25% of global incidences, with serious concerns about quality of treatment patients receive. Over 2 million HIV infected cases are from this country, constituting a third of the global infected population (GOI 2018). Data from 2014 reveals malaria to have affected over 1 million Indians with 553 million being vulnerable to filarial infections (Shetty et al, 2018). Around 60% of new leprosy cases reported globally continues to be from India. Additionally, this country features among the 22 countries on priority as they account for 95% of the total number of leprosy cases world over (Rao and Sunetha, 2018). Thirty-seven million Indians are infected with Hepatitis B virus (Puri 2014). Such caseload coupled with delivery gap in healthcare services, exemplifies the challenges public healthcare is facing in rural India.

Elaborating on this aspect, Kasthuri (2018) identified four A's plaguing healthcare service delivery in rural areas. The first 'A' denotes the lack of awareness about healthy practices and health-related issues. Studies reported among antenatal mothers, only one-third were aware about proper breast-feeding routine and practice. Another study concluded that only 20% respondents displayed awareness about causes and prevention of geriatric morbidity (Kasthuri, 2018). Such levels were attributed to low literacy, inadequate functional knowledge and generally prevalent indifference towards health issues among the masses.

The second 'A' denotes lack of access to proper healthcare services. Kasthuri (2018) notes study results revealing only 37% of rural populace could access indoor patient facilities in healthcare institutions located within five kilometres from their residences. Out-patient departments were accessed by 68% people. This implies those residing in remote rural pockets find it extremely difficult to access quality healthcare in times of need or crisis. Therefore, such population remains vulnerable to complications arising from malnutrition, neglect of diseases during initial stages, lack of adequate medication and treatment support. Cumulatively these drive-up mortality numbers, including premature mortality (Kasthuri, 2018). Pertinent to mention that a report of Institute of Healthcare Informatics (2012) found rural primary health centres severely lacking in quality of patient beds, drinking water facilities, clean and hygienic wards and washrooms, hygienic delivery rooms and consistent power supply. The third 'A' denotes absence of trained and skilled manpower for seamless delivery of healthcare services (Kasthuri, 2018). In this regard Rao et al. (2011) had reported about 20 workers providing healthcare services for every 10,000 people in India. The universe of healthcare service providers consists of 31% allopathic doctors, 30% trained nurses and midwives, 11% chemists and pharmacists and 9% homeopathic and ayurvedic practitioners. Since most of these individuals prefer to work in facilities near to cities, given the advantages of life and living, rural areas remain largely neglected. Capacity to afford healthcare services, is the fourth 'A' highlighted by Kasthuri (2018). It is not uncommon for families to slip into economic doldrums trying to meet cost implications of quality healthcare services. As many rural families find it extremely difficult to meet the bills of healthcare services in private institutions, they tend to shy away from seeking their services. Though government-aided or supported institutions offer treatments and services at no cost or low-cost propositions, the perception of them being unreliable and staff having an indifferent attitude towards patients, further compound the problem (Kasthuri, 2018).

Bali and Singh (2007) studied impact of mobile phones in rural community health care system in North India and concluded that 91% of respondents found telephonic advices extremely beneficial in dealing with medical problems. Encouragingly 96% of participants demonstrated willingness to continue availing such services (Bali and Singh, 2007). Total of 660 calls were received during the period of the study and 63% callers sought health advice, 22% called to follow-up for out-patient treatments, 4% callers sought appointment with doctors and other medical professionals while 11% calls were requests for blood donation, medical camps and health education (Bali and Singh, 2007). Of those seeking advice, 54% sought insights about specific ailments while 46% were about treatment-related discussion. Bali and Singh (2007) notes that maximum number of callers sought help with regards to hair and dermatological problems, chicken pox,

laceration, measles, animal bites and such issues. Other callers mostly sought inputs about respiratory problems, asthma, tuberculosis, pneumonia, psychological problems, behavioural problems, inferiority complexes and insomnia (Bali and Singh, 2007). Holistically the study concluded that, rural community members found mobile telephonic consultation extremely beneficial and this is manifested by the rise in number of health advice service users during the period of the research.

This finding is in line with that was reported by Hull et al. (2002) who noted that even in regards to problems related to primary healthcare and conditions prior to treatment, mobile connectivity has beneficial impact. This could be concluded from the consistent increase in calls made per month for primary healthcare and pre-treatment situations which demonstrates its acceptance and willingness of callers to continue availing the service (Hull et. al, 2002). Ramachandran et al. (n.d.) from their study about impact of mobile messages on promotion of maternal health in rural India reported that when health workers conducted counselling session through mobile messaging, the impact was greater than when the medium was not used. It was also reported in the study that mobile messaging helped field health workers find about myths and challenges that regulated health behaviour of rural populace. Many patients, it was found, did not know how to swallow pills which was hampering their medicine intake (Ramachandran et al., n.d.). This shows that through messaging health workers are able to detect underlying reasons which prevents medicine and treatment administration and thereafter take relevant corrective steps.

How visuals or video capsules on mobile help field health workers was researched by Ramachandran et al. (2010). The study concluded that videos, that could be shown via mobile phones helped health workers engage their audience better and strengthened health-related discussion between the two. Thus, it became easier for health workers to persuade the rural population about how they could stay healthy, avail medical advice as and when required and take necessary steps for treatment (Ramachandran et al., 2010).

It can thus be derived from the above that mobiles phones are playing a pivotal role in bettering healthcare delivery across rural India. Mobiles are making latest information available to doctors and health workers and through them to the communities. As awareness is widening, people are reporting diseases at early stages, leading to containment and cure. Prevention of diseases is also becoming possible through wide circulation of information. Given the distance between villages, and obstacles in physical accessibility, consistent information flow was a challenge. Mobiles are facilitating communication at the click of buttons. Interactions and relations have strengthened and delivery efficiency have gone up. While this seems to be the India story, is it the same in West Bengal also? Has mobile aided better information flow, disease control and delivery efficiency across Bengal villages? The following section addresses the questions.

Research Methodology

Research Approach

On the approach to adapt for healthcare research, Bedregal et al. (2017) notes that both qualitative and quantitative methods should be applied when undertaking research about healthcare sector. Such an approach provides researchers with the required insights and information thereby enabling them to draw specific and significant conclusions about the phenomenon being examined (Bedregal et al., 2017). In keeping with this opinion, mixed-method approach was selected for this study.

Quantitative data was collected to assess span and kind of mobile ownership among population of study area. A survey was thus conducted to gather relevant information about mobile ownership, number of devices, category of device and purpose of frequent mobile use. To gather information about how has mobile being beneficial in accessing healthcare facilities, focused group discussions were held with villagers and field health workers. Finally, interviews were conducted with healthcare practitioners, providers and officials to understand how mobile phones were being currently utilized in creating awareness and easing accessibility. Findings indicated current level of technology utilization and areas of improvement. Gathered information was subjected to thematic analysis to deduce qualitative results.

Sampling Approach

In studies on healthcare, non-random samplings approaches are popular among researchers (Panacek and Thompson, 2007). Convenience sampling, a variant of non-random sampling, has been applied for this study. Saunders et al. (2012) defines convenience sampling as selection of participants from the group which is readily reachable by the researcher. Sampling exercise was undertaken at Karea village, located close to Bolpur, the district headquarters. As Karea had witnessed healthcare lapses in the past, it seemed a potent area for evaluating impact of mobile telephony on healthcare service delivery. From villagers using mobile phones, 90 respondents were selected on the basis of convenience of interaction. Respondents, who were available, hailing from similar socio-economic backgrounds and using mobile phones, were included in this study.

As respondents were expected to provide detailed information about how mobiles were impacting availability of healthcare services, interviewing family decision makers was deemed relevant and pertinent. Hence only those aged 18 years and above, and convenient to get in touch with, were selected for this study.

Data Collection Approach

Survey, focus group discussion and in-depth interviews were the three data collection methods employed. Survey sought to gather data about level of mobile ownership and usage behaviour among Karea residents. As such, a close-ended questionnaire was administered to all villagers aged 13 years and above. Since village kids under this age do not tend to own mobiles, it was considered the cut of age. Next, three focused group discussions were conducted to gather in-depth qualitative about how mobile was aiding in accessing healthcare services and opinion, behaviour variables and attitudinal transformation among mobile phone users. Two groups of villagers and a group of health workers provided information sought. Of the two villager groups, the first comprised those aged between 18 years and 50 years. The second group included those aged 51 years and above. Researcher briefed villagers about the topic under focus and allowed them to interact, occasionally intervening to direct flow of conversation. The third data collection approach was in-depth interviews of drivers of ambulance services, medical practitioner, Block Medical Officer (Karea) and the Block Development Officer to record their perspective about how mobile technology was being leveraged in the village for quality healthcare service delivery.

Results and Discussion

Final sample size for this study was 90 respondents from Karea village. Survey, focus group discussion and in-depth interview were separately conducted. Data gathered are presented and discussed herein.

Analysis of Mobile Ownership and Use

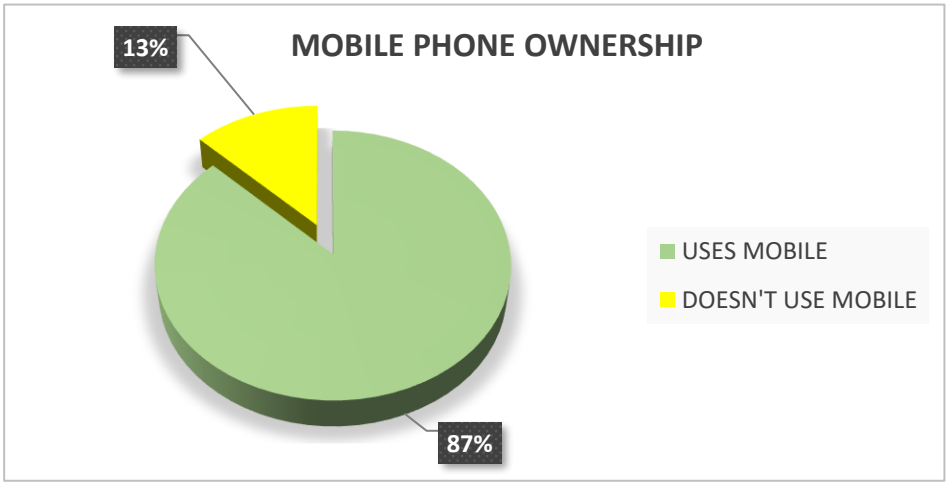

Figure 1: Mobile Phone Ownership

Majority of Karea villagers own mobile phones (Fig. 1). Mobile telephony penetration is high and majority of them are using it for different purposes. Karea is fertile ground for strengthening delivery of healthcare services through mobile telephony, offering opportunity to field workers, medical practitioners

and administrators to encourage increased mobile usage for health-related matters. Mobile is therefore a potent medium through which effective health service delivery can be ensured throughout the village.

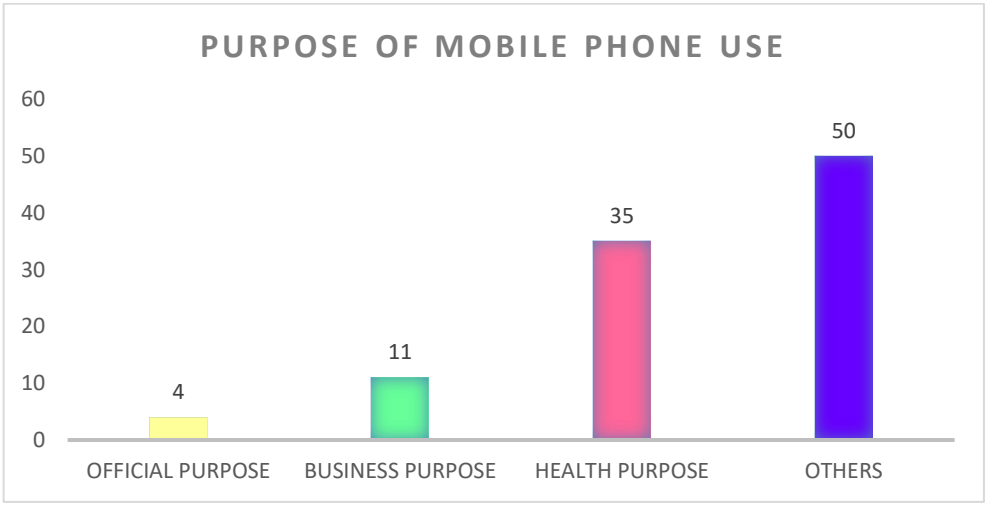

Figure 2: Reasons for Using Mobile Phones

Only 35% reported using mobiles to obtain health services (Fig. 2). This is encouraging and underlines potential for motivating more villagers to use their devices to get health services. Given that 50% use it for 'other' purposes, administration and health workers can attempt to convince this population into using mobile for seeking healthcare support. Field health workers and block level health officials can undertake initiatives like healthcare communication accordingly.

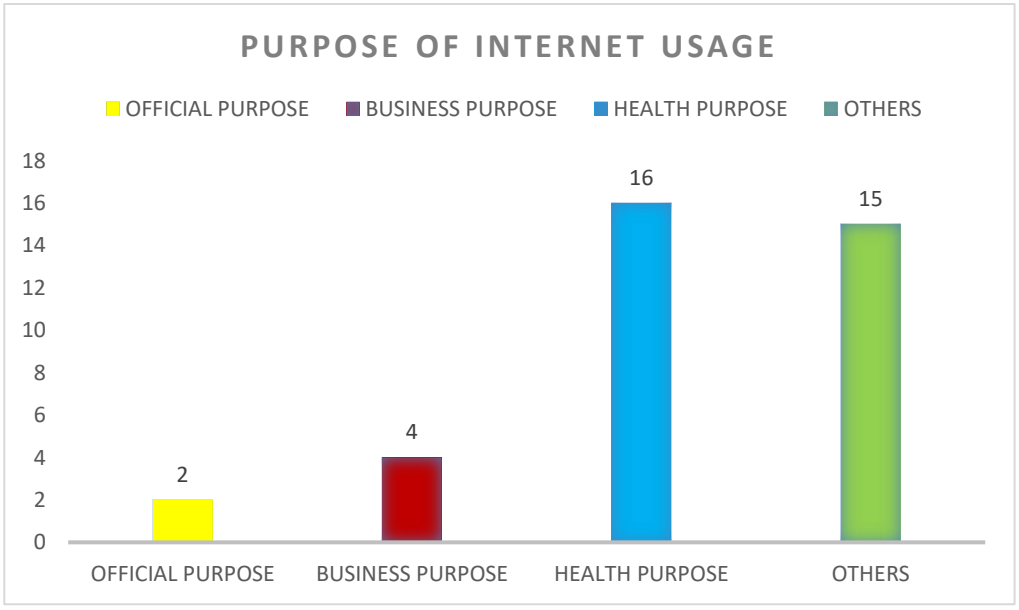

Figure 3: Reasons for Internet Use

Although internet use is not high, it is found that 37% villagers are online users. Of this, only 16% use it for health-related purposes (Fig. 3). Respondents note that internet helps with information about diseases, preventive measures, nearest hospitals and healthcare centres. As such, village health workers and district administrators should try to encourage more villagers to use the internet to access health-related information. The above two findings (Fig. 2 and Fig. 3) underline the need for field health workers and administrators to become proactive in encouraging villagers to seek health specific information via mobiles.

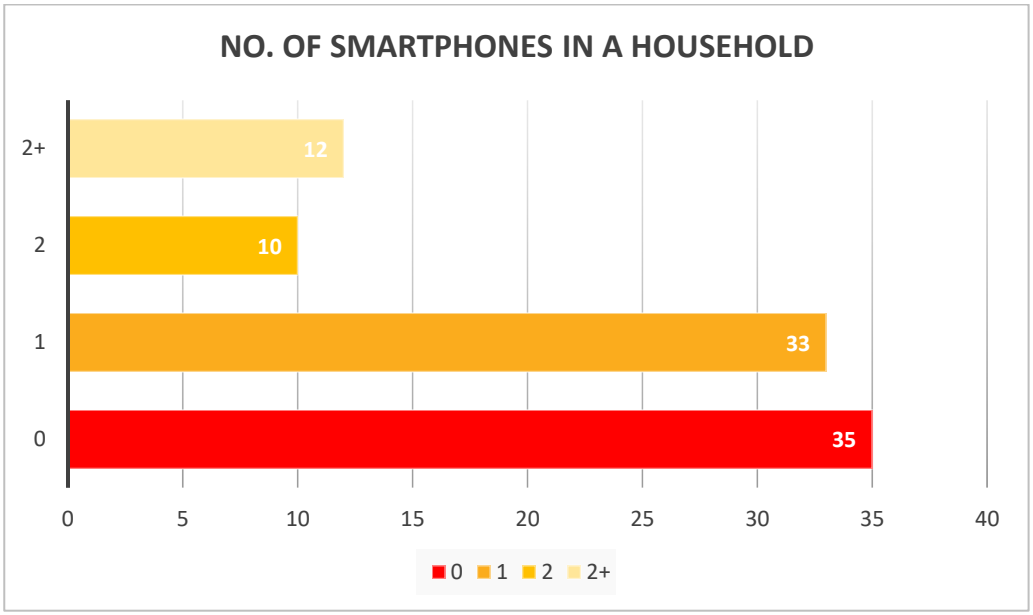

Figure 4: Smartphone Ownership Pattern

Of the total respondents, 57 reported owning smartphones while 35 do not own such device. Within the first group, 33 households own or use at least 1 smartphone while 10 households own 2 smartphones. Interestingly 12 households have access to more than 2 smartphones (Fig. 4). Since these devices allow video viewing, they can be effectively used for circulation of health-related information throughout the village, specifically among those not having a smartphone. Field workers can share videos to smartphone owners about diseases, symptoms, treatment and prevention, and other health issues. Smartphone owners can view such videos themselves and also show them around in the neighbourhood. This can elevate level of awareness and knowledge, thus having beneficial impact.

The existence of significant opportunities for cascading health information throughout the village and motivating villagers to use their mobile phones for accessing health-related information and services, emerges from the above. High percentage of smartphone owners (Fig. 4) creates ground for circulation of persuasive messages and educational capsules, in video format, to strengthen health engagement with villagers. Video capsules, prepared by medical practitioners and administrators, can be downloaded by health workers and shown to villagers. In practice it is up to field health workers, medical practitioners and health officials about how they can leverage this through optimal mobilization.

Analysis of Qualitative Data

Thematic analysis is the applied approach for analysing collated qualitative. Previous works have indicated that mobile telephony is rendering positive impact socially and economically. Extending this line further, the intention of this researcher was to test the extent to which mobile telephony is positively aiding the rural healthcare delivery system. Since the perception of the researcher is guided by existing knowledge, deductive thematic analysis was deemed best fit.

Thematic Analysis for Focus Group Discussion

Qualitative data for this study was gathered through three separate focus group discussions and focused interviews. The first group discussion was conducted with villagers aged between 18 years and 50 years. Those aged 51 years and above participated in the second group discussion while the third was attended by 1Auxiliary Nurse Midwife (ANM), 2 Accredited Social Health Activists (ASHA) and 2 Anganwadi workers (AWW).

The focused group discussions sought input from participants about what they use mobile phones for, advantages mobiles offer in obtaining health facilities, medical facilities gotten through mobiles and

difficulties faced. Villagers were briefed about these aspects by the researcher and discussions were conducted around them. Transcriptions show four common themes from the three group discussions:

Dissemination of health information: According to views expressed by two focus group discussion participants, it emerged that mobile telephony has helped in effectively bridging the urban rural divide, has aided money and time savings and is positively impacting rural healthcare delivery. Field health workers are increasingly using the medium to circulate details of health awareness camps, pulse polio vaccine camps, vector borne disease awareness programs, leprosy eradication and tuberculosis control awareness programs. Smartphones are being used to access WhatsApp, Facebook, Instagram and Google to seek information about doctors and nearby medical institutions, at the behest of parents and relatives not owing smartphones. However, high percentage of illiteracy among villagers is a roadblock to their understanding and interpreting information provided in text messages circulated by health workers. This is a significant stumbling block, requiring addressing to ensure critical information reaching a wider section and being understood by them.

Ease of availing emergency services: Mobile telephony is being used by Karea residents during medical emergencies to consult doctors across Bolpur, Sian and Nanoor districts and for availing ambulance services. Several examples of hailing ambulances for heart and animal-bite patients were shared by villagers illustrating how they leveraged smartphones during health emergencies. One participant, hailing from a remote corner of Karea, narrated how he used his mobile to hail an ambulance and rush his 44-year-old mother to Kolkata for treatment. Another participant, whose uncle had suffered a cardiac arrest, also coordinated ambulance availability through mobile, saving precious time in shifting the patient to the nearest hospital. An ASHA worker narrated her account of using mobile to call for an ambulance to transfer a patient suffering from premature labour to a hospital in Nanoor district of Birbhum.

Mobile use by health workers and medical practitioners: Mobiles are seldom used by unlicensed medical practitioners (village quacks). They are not technologically savvy and hence not comfortable with mobile usage. Also, as they frequently visit households, need for contacting them over mobile is greatly reduced. Health workers opined that their frequent visit to household for administering pulse polio vaccination, vaccination against filaria and other vector borne diseases allows them to establish personal rapport with the villagers, which is not possible through mobile communication. Yet, health workers believe that without mobiles, managing healthcare related field especially in rural Bengal, is difficult. Hence health workers use mobiles to share information about health awareness programs like pulse polio vaccination, National AIDS prevention and control programmes, prenatal medication, vaccination to prevent leprosy and tuberculosis. Most health workers also use mobiles for submitting field reports to their immediate supervisors.

Availability of medicines and lifesaving drugs: Mobiles are frequently used to contact pharmaceutical stores, of nearest towns and cities, to frequently enquire about availability of medicines and supplies and more so during medical emergencies. On their part, pharmaceutical stores also depend on mobile to requisition and coordinate delivery of lifesaving pharmaceutical drugs from distributors and stockists.

The above underlines while villagers and pharmaceutical stores are dependent on mobiles, health workers and local doctors are yet to utilise its full potential. Attributable to mobiles, dissemination of information has smoothened and become more penetrative, as has been obtaining health service during emergencies. More patients are reaching hospitals and recuperating from serious ailments like cardiac arrest and animal bites, majorly due to information availability via mobiles. Awareness about health issues and preventive options is also increasing among villagers, as is their knowledge about vaccination and awareness camps. This, as admitted during the focused discussions, is curbing mortality rate which is surely an encouraging outcome.

Thematic Analysis of In-Depth Interviews

Six in-depth interviews were conducted covering a health service provider, a village administrative head, owner of a pharmaceutical store, an unlicensed medical practitioner and two block-level administrative officers. The objective was to comprehend perception of participants about advantages of mobile telephony in healthcare delivery, effectiveness of mobiles in aiding health workers discharge duties and responsibilities and benefits accruing to villagers and health functionaries. Participants were briefed about these aspects before initiation of discussions. Transcriptions brought forward three common themes from the interviews:

Extension of healthcare services: Mobile device has been instrumental in bringing positive changes through quick information dissemination, fast decision-making, and allocation of services to affected people. Healthcare challenges faced by villagers, due to lack of transportation facility and socio-economic underdevelopment, have been partially addressed through developments in mobile telephony. For example, a patient in urgent need of lifesaving drug was able to arrange one at short notice by reaching a pharmacist via mobile and it led to saving a life. Without mobile phones, this wouldn't have been possible for villagers of Karea. Another example cited was of a self-poisoning case, wherein mobile aided in quick arrangement of ambulance service and the patient was shifted to a Sian hospital and saved. For victims of snake bites, mobiles are frequently used for managing ambulance services and admission in nearest hospitals. Circulation of messages about pulse polio programs, national vector borne disease control programs, revised tuberculosis programs, prevention and control of viral hepatitis and cancer, diabetes, cardiovascular diseases and strokes, IDD programs, blindness, tobacco control programs, leprosy eradication programs, national AIDS prevention programs are done via mobiles. This has arrested mortality rate within the village.

Ensuring drug availability: Communications about stock refilling and placement of orders of life saving drugs are now being conducted via mobile phones. Pharmaceutical stores convey the name and brand of the drug, either through mobile message or WhatsApp message to stockists and suppliers and receive supplies. Additionally, pharmacists are also depending on mobiles to communicate with medical practitioners to clarify confusions regarding prescriptions or name and dosage of drugs.

Seamless delivery of healthcare services: Due to use of mobile telephones, middlemen involved in healthcare delivery has become redundant, speedy response of healthcare delivery system to crisis situations has become possible, health sub-centre staff are receiving guidance from seniors in delivering health services and mechanism for monitoring effectiveness of health workers has become easier. Mobile phones are also ensuring speedy delivery of healthcare support and staff mobilization during routine immunization or other health related activities. An example is the Global Iodine deficiency program, which screens school-going children for iodine deficiency. Creating awareness about the program and managing transport to ferry children to centres are now coordinated through mobiles. Promotion of health check-up campaigns and awareness program for senior citizens, sharing details like date, venue, time and others, are being dissipated through mobile phones, which has increased success rate of such interventions. Tobacco control program, program about prevention of anaemia among adolescent mothers and children and promotion of menstrual hygiene are examples of programs made successful through mobile promotion. Mobiles are facilitating greater communication between different levels of health department staff, health activists and villagers resulting in higher level of information flow. Mobile telephony enables immediate communication, which is essential during medical emergencies when instant reinforcements are required. In such situations, field health staffs also receive guidance from government authorities via mobiles.

Monitoring of and information collation about conducted programs are undertaken by village health officials through their mobiles. Basic messages received about health issues, healthcare teams and administrative machinery are mobilised. Functioning of block level Nutrition Rehabilitation Centre, mandated to take care of malnourished children, have become more effective and efficient due to ease of connectivity and communication. WhatsApp group chats have evolved into a vital medium simplifying communication between the government, its stakeholders and citizens. More can be achieved, in rural healthcare delivery, through technology upgradation to cloud messaging and varied user-friendly apps. Information sharing, monitoring and supervision can be better streamlined in the process.

Conclusion

This study was conducted to gain insight into how mobile phones were being instrumental in addressing healthcare service issues known to Karea village. This research was an exercise to find answers to the expanse of mobile ownership in the village, how owners are using their devices to seek healthcare support and information, how mobiles are benefitting field health workers, healthcare institutions and departments, district administration and state government is furthering healthcare awareness and support in the study area. Findings suggest mobile telephony having improved healthcare delivery and accessibility in Karea village. Though concern areas remain, certain degree of improvement has occurred. Healthcare delivery system is more streamlined, continuously supervised and managed and therefore efficient. Majority household recording mobile ownership shows reasons for optimism that technology can be leveraged to improve speed

and quality of healthcare support. Mobile using habit is making it easier to circulate information, search relevant information and call for support when needed. Residents know, and are being further guided and educated, about basic mobile operations which will allow them seek assistance when need arises. Healthcare workers are increasingly providing information, supervising and guiding, executing official responsibilities, guiding patients and providing support over mobile phones.

High mobile penetration has increased patient count reaching hospitals and getting treated. A reflection can be seen in the lowering mortality rates. Field workers get information across quickly and authorities are able to monitor implementation of healthcare programs. Since smartphone usage is not uncommon, field health workers are using appropriate messages to engage villagers and build basic awareness about health issues, and when and how to seek help in crisis situations. As such messages about camps, prevention programs and vaccination drives are promoted through mobiles, enabling collective awareness building. In such environment, exchanges between individuals further enhance learning, insights and awareness.

Currently villagers are not using mobile for healthcare purposes to its potential. This needs correction, for mobile to become more effective in ensuring healthcare support till the last post. More people should be encouraged to access health services and educate themselves about healthcare aspects via mobiles. The more people embrace this technology and intake information, disease prevention will take precedence over disease cure. That can be a boom for village's public health situation. And connecting several such villages, an impact can be made on the national public health scenario.

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