



# Nepal Health Sector Support Programme III (NHSSP – III)

## PROGRESS REPORT ON THE IMPLEMENTATION AND BASELINE STUDY REPORT OF THE “mHEALTH INNOVATION TO IMPROVE FEMALE COMMUNITY HEALTH VOLUNTEERS’ ENGAGEMENT WITH COMMUNITIES”

November 2019



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## LIST OF ABBREVIATIONS

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AIM	Assuring Integrity in Measurement
ANC	Antenatal Care
BBC	British Broadcasting Corporation
DFID	UK Department for International Development
DG	Director General
DiD	Difference in Difference
EU	European Union
FCHV	Female Community Health Volunteer
FGD	Focus Group Discussion
FP	Family Planning
FWD	Family Welfare Division
GDPR	General Data Protection Regulation
GoN	Government of Nepal
HCD	Human-centred Design
HDI	Human Development Index
HF	Health Facility
HMG	Health Mothers' Group
IDI	In-depth Interview
IEC	Information, Education and Communication
IFA	Iron and Folic Acid
INGO	International Non-governmental Organisation
IVR	Interactive Voice Response
MEOR	Monitoring, Evaluation and Operational Research
MA	Media Action
mHealth	Mobile Health
MoHP	Ministry of Health and Population
NGO	Non-governmental Organisation
NHEICC	Nepal Health Education Information and Communication Centre
NHSSP	Nepal Health Sector Support Programme
NHSSP 3	Third Nepal Health Sector Support Programme
NHTC	Nepal Health Training Centre
NSSD	Nursing and Social Security Division
PNC	Postnatal Care
RMNCH	Reproductive, Maternal, Newborn and Child Health
SDPC	Social Development and Promotion Centre
SPSS	Statistical Package for the Social Sciences
ToC	Theory of Change
USAID	United States Agency for International Development

## **ACKNOWLEDGEMENTS**

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This is a report on the process of the development and implementation of the mHealth innovation, which is being supported by the UK Department for International Development and the Nepal Health Sector Support Programme (DFID-NHSSP). This approach is being pilot tested in three districts – Tehrathum, Rautahat and Darchula– in collaboration with the Nursing and Social Security Division (NSSD). This has been initiated and managed by DFID-NHSSP in collaboration with the Government of Nepal and implemented by BBC Media Action (BBC MA). The evaluation design for pilot approach was developed by BBC MA and reviewed by DFID-NHSSP, MEOR and NSSD. The evaluation data gathering was done by an agency contracted and overseen by BBC MA for quality, and the baseline report has been drafted by BBC MA and reviewed by DFID-NHSSP.

This report is being submitted to DFID as Payment Deliverable 76.

## EXECUTIVE SUMMARY

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Despite progress, inequity in service access and utilisation has remained a challenge for the Ministry of Health and Population (MoHP) in Nepal. The Female Community Health Volunteers (FCHVs) Programme in Nepal was started in 1988 by the MoHP to improve community participation and enhance the outreach of health services in order to provide health education and community-based health services with a focus on maternal child health, Family Planning (FP) and nutrition. However, it is widely agreed that there is a need to improve both FCHV service quality and the community's awareness, perception and uptake of FCHV services.

The UK Department for International Development (DFID) Nepal Health Sector Support Programme (NHSSP), in collaboration with the Government of Nepal (GoN), has contracted BBC Media Action (BBC MA) to design, implement and evaluate an innovative mobile-phone-based solution that can best support FCHVs in their work as health promoters in communities across Nepal. The project aims to deliver an effective FCHV mobile-phone-based tool prototype for future roll-out by the GoN. Part 1 of this report presents the progress made to date on this project and Part 2 presents the baseline findings from the first phase of a mixed-method evaluation.

**Implementation progress:** To implement the innovation, DFID-NHSSP and BBC MA first had to seek approvals and conduct stakeholder consultations. The project has conducted in-depth formative research with FCHVs and their beneficiaries in the three districts selected for the Mobile Health (mHealth) pilot roll-out: Tehrathum, Darchula and Rautahat. This research informs the overall project design and solidifies the project's Theory of Change (ToC). The development of concepts for the mHealth tool was tested and refined using a Human-centred Design (HCD) process, prior to the full launch of the mHealth tool in September of this year. A robust monitoring and evaluation design surrounds the roll-out and implementation of the mHealth tool in order to understand the impact it might have on FCHVs' knowledge, communication and efficacy in communicating with their clients.

The project is piloting the mHealth tool, named Mobile Chautari, with 800 FCHVs in selected municipalities in Tehrathum, Darchula and Rautahat.

**Baseline study:** The results of this quantitative study are from the treatment district Tehrathum, and the selected control municipalities in Khotang. The evaluation is seeking to understand whether the mHealth tool is improving the effectiveness of FCHVs in their role as health promoters, focussing on whether the tool is improving the communication skills, health knowledge and confidence of FCHVs.

The evaluation's quantitative component employs a Difference in Difference (DiD) approach. Although the design lacks random assignment, the most rigorous approach was employed, also cognisant of the time and budget constraints, and the relatively small number of FCHVs and differences among them. The evaluation collects individual data from the same participants before and after the training and mHealth intervention was rolled out. Further, the extensive research carried out in advance of the baseline study, capturing both individual and community-level characteristics, provided crucial insights into which health posts in Khotang would be the most appropriate match for FCHVs in Tehrathum. For this baseline study the data from 734 FCHVs in Khotang and Tehrathum have been analysed against each other to determine how similar these women are with regards to pre-treatment covariates and outcomes of interest. When the two groups of FCHVs were compared, differences emerged but the magnitude of these differences was not large; a sufficient number of FCHVs participating at the endline will be necessary to satisfy these assumptions and carry out a credible analysis.

This baseline report presents the outcomes of interest, or baseline indicators, around FCHV communication skills, health knowledge and confidence to identify areas of possible improvement for using the mHealth tool. In line with formative research it was found that FCHV knowledge, communication skills and confidence are sometimes low and there is scope for the mHealth tool to make a positive impact on FCHVs' interactions with communities. The study found that FCHV health knowledge can be shallow, with many FCHVs reporting only basic knowledge on each of the health topics explored. Further, FCHVs

often lack the breadth of knowledge that can be influential in regard to behaviour change. For example, most FCHVs know when and how many Iron and Folic Acid (IFA) tablets pregnant women should take and most also know that the tablets help treat anaemia; however, fewer FCHVs are able to explain their wider benefits, including providing women with more energy or helping reduce the risk of a baby being born too small. These wider benefits could be influential in motivating women to change their behaviour and take IFA tablets, particularly those women who are experiencing side effects and considering discontinuing use.

The pilot is now underway and will run until February 2020 whereupon the endline survey will be conducted and analysed alongside the additional qualitative study to identify any improvements in FCHV behaviours.



# **PART 1: PROGRESS REPORT ON THE IMPLEMENTATION**

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# 1 INTRODUCTION

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Despite progress, inequity in service access and utilisation has remained a challenge for the Ministry of Health and Population (MoHP) in Nepal. Community-based health services have been implemented in many contexts in attempts to bridge both demand and supply gaps: they aim to not only take some basic services closer to the community, but also encourage demand through various methods of behaviour change communication. The Female Community Health Volunteers (FCHVs) Programme is one such attempt in Nepal: it was started in 1988 by the MoHP to improve community participation and enhance the outreach of health services in order to provide health education and community-based health services with a focus on maternal child health, Family Planning (FP) and nutrition. Findings from various studies about the effectiveness of FCHVs have differed based on the geographical and methodological differences, but the general consensus has been that there is a need to improve both FCHV service quality and the community's awareness, perception and uptake of FCHV services. With over 50,000 FCHVs currently working in Nepal, and 97 per cent of them in rural areas, there is huge potential for health service reach-out to underserved groups through FCHVs, were their services to be strengthened.

The UK Department for International Development (DFID) Nepal Health Sector Support Programme (NHSSP) therefore aimed to pilot an innovation using Mobile Health (mHealth) technology to improve the quality and content of communication and interactions of FCHVs with women and adolescent girls in delivering Reproductive, Maternal, Newborn and Child Health (RMNCH), FP and nutrition messages. To achieve this, DFID-NHSSP contracted BBC Media Action (BBC MA) Nepal to design an innovative mobile solution that can best support FCHVs in their work as health promoters and facilitators in communities across Nepal, and – if successful – for its potential future roll-out by the Government of Nepal (GoN). With the approval of this proposal from DFID in early 2018, a contract between Options UK and BBC MA was finalised at end of June 2018. Part 1 of this document reports on progress that DFID-NHSSP has made with regard to the implementation of this innovation. Part 2 reports on baseline study findings for the evaluation purposes. This document is a payment deliverable to DFID, on the mHealth innovation.

## 2 IMPLEMENTATION PROGRESS

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The implementation progress described below is a summary of three areas of work completed so far: Activity Area One – Seeking approvals and having stakeholder consultations; Activity Area Two – Developing the concept and planning and organising for implementation; and Activity Area Three – implementation.

### 2.1 ACTIVITY AREA – 1: APPROVALS AND CONSULTATIONS

#### 2.1.1 Official Approval

The mHealth innovation had been planned for a start date at the end of June 2018, but with the structural change of the federal system in Nepal, the responsibility for FCHV work in Nepal moved from the Family Welfare Division (FWD) to the newly established Nursing and Social Security Division (NSSD) under the Social Health Security Section in July 2018 (Fiscal Year 2018/19). NHSSP initially presented the concept of the mHealth innovation to the then FWD Director on 19 July 2018, and following the shift in responsibilities to the NSSD, in August 2018. A consultation meeting was held on 7 October 2018, at which the Director General (DG) agreed to proceed with the mHealth innovation with the formation of a Technical Advisory Group (TAG) under the DG's leadership. The first meeting of the TAG was held on 23 November 2018, when the final permission to undertake the innovation was given.

#### 2.1.2 Key stakeholder consultations

**Wider consultations:** A half-day workshop on 'mHealth for FCHVs – Sharing and Learning Workshop' was organised by NSSD on 7 October 2018. The workshop gave an opportunity for the 'mHealth for FCHVs Project' to be introduced to a wide audience of government stakeholders and external development partners. Some points on which there was consensus from the workshop participants included:

- The mHealth tool is an appropriate and much needed job aid for FCHVs
- There is a need for a TAG for the project
- The Secretariat for the TAG should lie with the Social Health Security Section of the NSSD
- The TAG will meet every three months and provide technical guidance to the mHealth project in all stages of the project phases
- There will be support for collaboration with other mHealth initiatives to encourage interoperability and avoid duplication.

**The TAG** was formed on 21 October 2018 under the leadership of the DG. The TAG approved the 'mHealth Tool Development for Female Community Health Volunteers' project and agreed its key aims. Several consultative meetings and discussions were subsequently held to decide and approve:

- The mobile tool development
- Districts in which the innovation would be piloted: Tehrathum, Rautahat and Darchula
- The formative research design
- The evaluation methodology.

To date, four TAG meetings have been conducted; other meetings have been held by NHSSP and BBC MA with NSSD to discuss decisions to be taken by the government and other issues. Seven TAG members have visited project sites.

**FCHV interactions** were also important to gain both an early understanding of their needs and their reaction to the proposed mHealth tool. Two FCHV interactions were conducted in nearby municipalities; these included a total of 17 FCHVs, eight Health Facility (HF) staff and three locally elected officials. All FCHVs taking part in these sessions confirmed that they would like the government to move ahead with a mHealth project and were specifically supportive of a mobile-phone based job aid for FCHVs.

## 2.2 ACTIVITY AREA – 2: DEVELOPMENT OF THE CONCEPT AND DESIGN

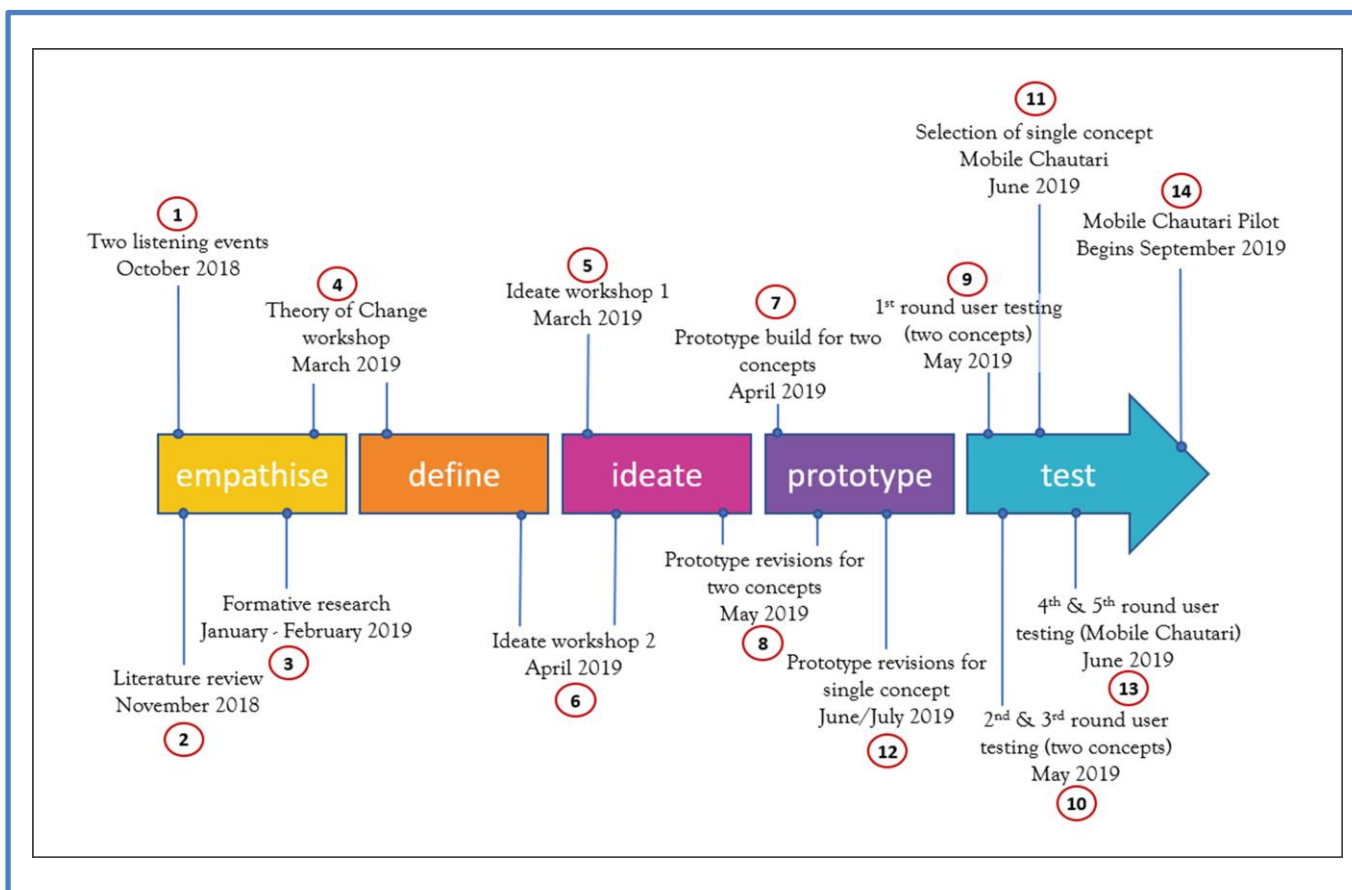


Figure 1: Concept and design development timeline

Following approvals and after gaining government and FCHV agreement on the basic principles and aims of the mHealth innovation, DFID-NHSSP and BBC MA moved ahead with other activities that would help to ideate and design an appropriate intervention for FCHVs. These included:

**Literature Review:** This review was conducted by BBC MA and reviewed and quality assured by DFID-NHSSP. It included three sections, the findings of which are given below:

- **Nepal FCHV literature review.** This found that FCHVs live within the communities they serve and have a significant positive impact in many communities. However, FCHVs face continued challenges at the community and programme level. At the community level, some groups are harder to reach, and their entrenched social norms can override FCHVs' advice. At the programme level, supervision arrangements are inadequate, commodities are not consistently available to FCHVs and retirement practices are contributing to significant variances in the age, literacy and effectiveness of FCHVs.
- **Global mHealth literature review.** This found that while there are a number of qualitative studies of successful mHealth projects around the world, overall the global evidence base supporting mHealth is low, and is symptomatic of a technological field in its infancy. The literature gives general support and encouragement for further use of mHealth in the developing world but cautions implementers not to underestimate the challenges and strongly encouraged a research approach that contributed to the building global evidence.
- **Nepal mHealth mapping exercise.** The project mapping exercise identified substantial space and opportunity for more mHealth initiatives in Nepal and specifically for mHealth as an FCHV support tool. Two particular projects were identified with which this project should work closely in order to avoid duplication or conflict. These projects are Suaahara and Aama Ko Maya.

**Formative Research:** The first phase of the project, 'scoping and formative research', was conducted in February 2019 and fed into the second phase, 'design and user testing'. In order to improve FCHV

interactions it was important to deeply understand the issues affecting FCHVs and the communities they serve, what current interaction and communication looks like and what their access to mobile technology currently is. BBC MA conducted formative research in the three target project districts: Darchula, Tehrathum and Rautahat. The qualitative research tried to understand: the life and health priorities of FCHVs and the consumers of their services (women and men) in the communities; FCHVs' ability and confidence to engage and communicate with communities; their barriers and challenges in communication and engagement; and the scope and barriers of using a mHealth initiative to improve services. Focus Group Discussions (FGDs), In-depth Interviews (IDIs) and observations were conducted in January and February 2019 in nine communities in across the three districts. The research found that:

- FCHVs are from diverse ethnic and caste backgrounds and with varied levels of education. Considering their age, education, training and support and engagement with communities, the research found there were emerging segments of FCHVs: the pioneers or the first generation FCHVs, who have been serving for more than 20 years, with little or no formal education; the active enthusiasts or second-generation FCHVs, who were comparatively young and more educated; and the educated youth, who had been recruited in the past five to seven years, most of whom have completed secondary education.
- Delivering FCHVs' day-to-day job is challenging. FCHVs face a range of challenges and barriers operating in traditional societies, in difficult environmental settings and with limited or little institutional support. Lack of in-depth knowledge on some of the key RMNCH health issues was one of the biggest barriers. FCHVs also find it difficult to communicate with certain groups of people, especially young women and men, and in some places with older women, who have strict traditional views.
- Use of communication tools, such as Information, Education and Communication (IEC) and flip charts, leaflets etc. provided by Non-governmental Organisations (NGOs), improved both FCHVs' communication and community members' ability to understand complicated health information. However, FCHVs reported that they only use these tools in Health Mothers' Group (HMG) meetings (and even then rarely) as the materials are old and worn and members have lost interest, having seen them many times.
- FCHVs had good access to mobile phones and used them regularly. Coupled with the demand for more engaging communication tools, this provides fertile ground for testing a mHealth initiative.
- Both groups – FCHVs and community members – believed that visual aids improve communication and quality of interaction.

**Theory of Change (ToC) workshop:** On 17 March 2019, BBC MA organised a ToC workshop to come up with the high-level project design concepts to take to user testing. This took a bottom-up approach to the design, looking at findings of formative research and then building a ToC that identified the barriers and outcomes that the solution would have to address. This was done through the active participation from the NSSD, Nepal Health Education Information and Communication Centre (NHEICC), Nepal Health Training Centre (NHTC) from across the Department of Health Services, NHSSP and the Monitoring, Evaluation and Operational Research (MEOR) project.

The 'empathise' element of the workshop took a deep look at the formative research to understand FCHVs and the communities they serve. The 'define' stage transitioned from empathising into exploring the problems FCHVs face. A long list of barriers were extracted from the deep empathising sessions, grouped into categories to understand how FCHVs can best be influenced through behaviour change theory. Finally, the long list of identified barriers helped the formulate a broad ToC hypothesis, and thereafter to develop the solution design around a core problem statement.

The problem statement was defined as: *FCHVs are not the best health promoters they can be because they lack the knowledge, skills and confidence to communicate effectively. Our solution should focus on supporting FCHVs to facilitate engaging, participatory and trusted health discussions.*

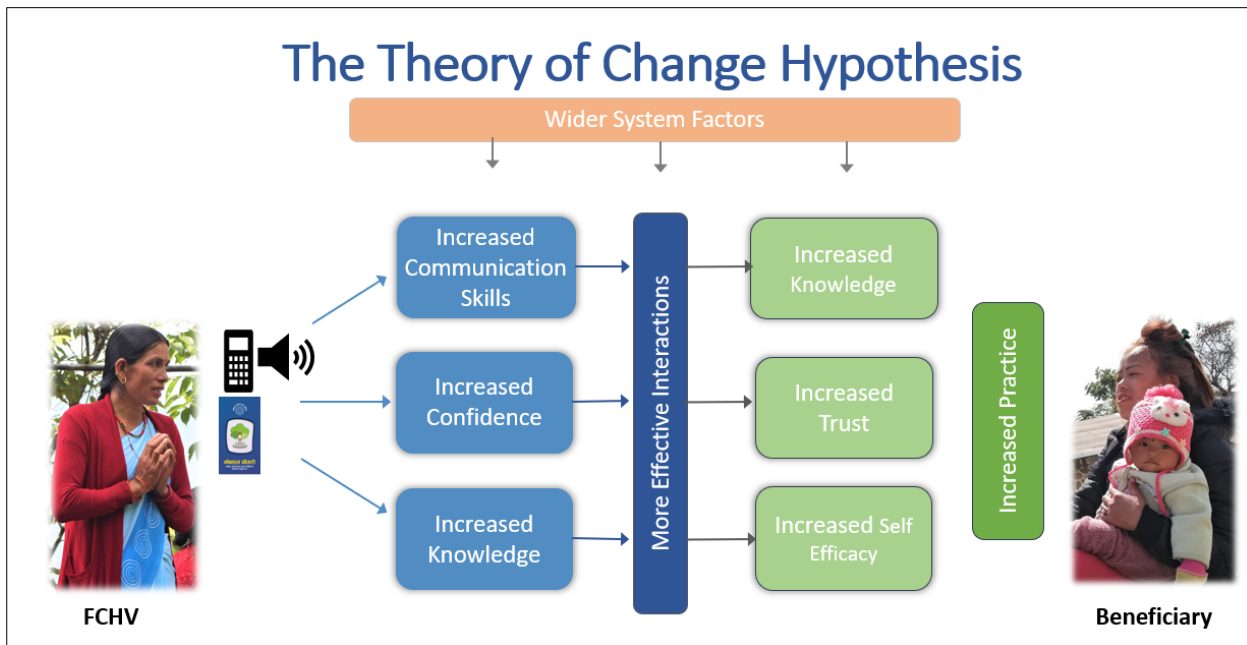


Figure 2:

### Theory of Change

**Human-centred Design (HCD) Workshop:** In April 2019, BBC MA held a HCD workshop to ideate the mHealth tool, where the many barriers identified in the ToC workshop were further analysed and synthesised in order to decide which aspects were most important and which less important, ultimately to focus the design team on the core problem through defining the project problem statement. At this workshop, two concepts were arrived at that defined the raw concepts selected within the ToC workshop and incorporated many of the ideas. These would be the key mHealth components:

1. FCHV skills training through the Interactive Voice Response (IVR) system
2. IVR and IEC printed cards to support community interactions.

The two pilot concepts from the ToC were: Pilot 1, akin to Mobile Academy, and Pilot 2, akin to Mobile Kunji. With these basic agreements the development of the mHealth tool prototypes were embarked on. This workshop also had the active participation of the NSSD and NHTC along with BBC MA and NHSSP.

## 2.3 ACTIVITY AREA 3: IMPLEMENTATION

When the key concepts had been agreed, the next step was to develop and test them. This also meant that the key sites where the pilot would be implemented also had to be decided. The implementation phase started with site selection, prototype development and testing and the baseline survey.

**Selection of pilot sites:** The number of municipalities within the three districts was selected in agreement with NSSD, based on the following criteria:

- One urban and two rural municipalities from each of the three districts
- Health indicators<sup>1</sup> to identify one high-, one medium- and one low-performing municipality in each district
- Selection priority of urban municipalities that are not the District headquarters
- Practical and logistical factors to be considered

<sup>1</sup> The indicators used for selection were (using Health Management Information System data from FY 2011/17 and 2017/18): FP Methods New acceptor as % of married women of reproductive age; % of births attended by a Skilled Birth Attendant : % of pregnant women who had four ANC check-ups as per protocol; % of women who had three PNC check-ups as per protocol; % of children fully immunised as per National Immunization Programme schedule; % of children aged 0-23 months registered for Growth Monitoring (New) who were Underweight; Percentage of children aged 0-6 months registered for growth monitoring who were exclusively breastfed for the first six months; % of newborns with low birth weight (<2.5kg) among total delivery by health workers.

**Prototype Development:** Mobile Chautari – a fully user-tested mHealth tool – was developed, emerging from discussions held at the ToC and HCD ideating workshops. This involved three rounds of user testing with FCHVs. Thirteen health issues were selected for inclusion in the prototype<sup>2</sup>. The health issues to be tested were selected with NSSD and FWD and approved by the TAG. Mobile Chautari consists of three separate pillars: audio content (IVR), which can be accessed through a simple mobile phone; prompt cards; and training of FCHVs. The facilitation model employs using “*Ke? – Kina? – Kasari?*”<sup>3</sup>, a simple three-stage process of asking questions to encourage community members to participate in the discussion of health issues. The training materials are based on these three questions. The final user-tested prototype, with materials, was approved by NSSD and the TAG.

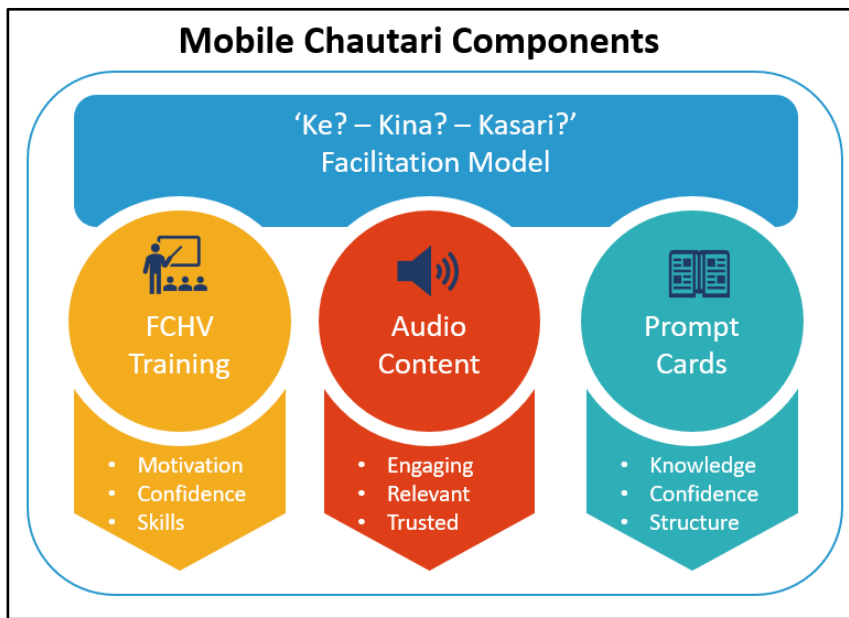


Figure 3 - Mobile Chautari, a four-part facilitation tool

**Baseline Study:** As this is a pilot project, it is important to evaluate its effectiveness and outcomes so that the GoN can act as per the findings. An evaluation design was developed by BBC MA, reviewed by NHSSP and MEOR. The baseline data collection for this was performed in September 2019, as the first phase of a mixed-method evaluation. This included a quantitative study from the treatment district Tehrathum, and the selected control municipalities in Khotang. The evaluation’s quantitative component employs a Difference in Difference (DiD) approach. The findings from the baseline study are provided in Part 2 of this payment deliverable.

**Training of FCHVs:** A total 810 FCHVs from Tehrathum (387), Rautahat (206) and Darchula (217) were trained on the use of “Mobile Chautari” during September 2019 by the Social Development and Promotion Centre (SDPC), an organisation contracted by BBC MA.

The objectives of the training were:

- To explore how discussion and facilitation support behaviour change
- To explore how Mobile Chautari facilitates discussion and supports behaviour change
- To explore and demonstrate how to use the component parts of Mobile Chautari
- To motivate FCHVs to use Mobile Chautari in HMG meetings.

<sup>2</sup> Topics included: Family planning – planning together; Maternal nutrition; Iron and folic acid; Birth preparedness; Pregnancy danger signs; Seasonal influenza – pregnant women; Essential newborn care; Immediate and exclusive breastfeeding; Post-partum danger signs – mother; Full or complete immunisation; Post-partum family planning; Uterine prolapse; and Growth monitoring

<sup>3</sup> ‘What? – Why? – How?’ in English

Training materials developed with SDPC and NSSD were tested with 15 FCHVs. Fifteen trainers were trained to provide training to FCHVs at 80 HFs in the three districts (Tehrathum – 32, Rautahat – 23, Darchula – 25). BBC MA, alongside the NSSD and District Health Office, provide supervision of the FCHV training sessions, using a filed monitoring checklist and feedback. Topics of the training include: personal journey of change; challenges and opportunities for behaviour change; health communication; discussion on HMGs and Mobile Chautari 'What? – Why? – How?' model; facilitation in HMGs and the Mobile Chautari 'What? – Why? – How?' model; introduction and learning how to operate the mobile phone speaker and Mobile Chautari; use of Mobile Chautari applying 'What? – Why? – How?' approach; planning and preparation of HMG meetings.



### 3 NEXT STEPS

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The activities for this innovative pilot study are now fully underway and are expected to progress as planned. The immediate next steps to continue implementation include:

- Promoting use of Mobile Chautari: FCHVs promoting the Mobile Chautari system by using push notifications and system data analysis; follow-up and supervision of FCHVs
- Developing a communication plan: BBC MA in coordination with NHSSP will develop a communication plan for advocating 'Mobile Chautari' at different levels of government in order to increase acceptance and ownership by the government.

The final phase of the evaluation, which will include endline data collection for the evaluation, will be performed on the completion of the implementation. Following this, a scale-up plan including costings will be developed.

Finally, the findings from the pilot will be disseminated widely and details will be included in the communication plan.

## **PART 2: BASELINE STUDY REPORT**

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# 1. INTRODUCTION

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## 1.1 PROJECT BACKGROUND

Introduced in 1988 by Nepal's Ministry of Health and Population (MoHP), the Female Community Health Volunteers (FCHVs) Programme was designed to enhance Nepal's primary health care network, improve community participation, and expand the outreach of health services (Panday, A., et al., 2017). This project, initiated by the Nepal Health Sector Support Programme (DFID-NHSSP) with the Government of Nepal (GoN) and funded by UKAid contracted BBC Media Action (BBC MA) to design an innovative mobile-phone-based solution that can best support FCHVs in their work as health promoters in communities across Nepal. The project aims to deliver an effective FCHV mobile phone-based tool prototype for future roll-out by the GoN. BBC MA is working closely with the MoHP and NHSSP 3 for the development, implementation and evaluation of the prototype innovation to ensure that the project and the tool are appropriate for Nepali FCHVs and the context in which they work.

The main objectives of the pilot project is to improve the effectiveness of FCHVs as health promoters and thereby to improve the quality of health discussion in Health Mothers' Group (HMG) meetings and FCHVs' wider interactions with the communities they serve. The Mobile Health (mHealth) tool seeks to improve FCHVs' skills in facilitating HMG meetings and the accuracy of health information they provide on key Reproductive, Maternal, Newborn and Child Health (RMNCH) and nutrition issues.

The first phase of the project, 'scoping and formative research', was concluded in February 2019 to identify the FCHVs' knowledge, capacity-building needs, barriers and challenges, motivators and their ability and willingness to use mobile phones within their role as FCHVs. This fed into the second phase, 'design and user testing', which used Human-centered Design (HCD) to create first two and then one final prototype for pilot testing, named Mobile Chautari.

Mobile Chautari is a facilitation tool supported by three distinct products: **Audio Content** accessed via a mobile phone; printed **Prompt Cards**; and a two-day **Training** programme. A simple facilitation model 'Ke? – Kina? – Kasari?' binds the three products of Mobile Chautari within a simple structure that is consistent across the three component parts and supports beneficiary behaviour change. Mobile Chautari has been rolled out to 800 FCHVs in three pilot districts, Rautahat, Tehrathum and Darchula.

## 1.2 RESEARCH OBJECTIVES

The evaluation uses a mixed method design with two phases, consisting of a quantitative baseline and endline survey with a five-month gap between each phase. The baseline survey was deployed in Tehrathum (the treatment group) and Khotang (the control group) before Mobile Chautari was rolled out, with repeated measures to be put to the same respondents once the evaluation period has ended. This Difference in Difference (DiD) design allows us to compare the changes in outcomes in both the districts after roll-out.

For the endline, we will also use qualitative tools across Rautahat, Tehrathum and Darchula to better understand how FCHVs engage with the mHealth tool and whether clients feel this improves their interactions with the FCHVs.

This baseline report presents the detailed findings from study focusing on FCHVs' demographic profile, work motivation, knowledge on health-related issues, knowledge on HMG facilitation, HMG practices, confidence, and efficacy, and mobile ownership and access. The endline study will be conducted five months after the roll-out and the final endline report will be submitted in May 2020.

### **Main objective**

The main objectives of the baseline study are to assess FCHVs' communication skills, confidence and knowledge before the mHealth tool is rolled out. It also aims to assess if there is any difference between the treatment and control group FCHVs at the outset of the intervention. The baseline study was also designed to understand:

- FCHVs' knowledge of facilitation skills
- FCHVs' knowledge of key health-related issues
- FCHVs' level of confidence to facilitate HMG meetings
- FCHVs' access to mobile phones and willingness to use them in their work.

### **1.3 RESEARCH HYPOTHESIS**

We know very little about how mHealth job tools can improve FCHVs' skills and confidence in delivering messages and facilitating discussions on health issues. We have several hypotheses that we will test across the quantitative component of the study.

The quantitative study will test the following hypotheses (please also refer to Figure 2 on the ToC):

**HYPOTHESIS 1** – FCHVs exposed to Mobile Chautari will demonstrate higher levels of health knowledge and knowledge on how to communicate effectively with beneficiaries as compared to their colleagues who reside in the control district.

**HYPOTHESIS 2** – Exposed FCHVs will exhibit higher levels of confidence in speaking at and facilitating HMG meetings as compared to their colleagues who reside in the control district.

**HYPOTHESIS 3** – FCHVs who are exposed to Mobile Chautari will report better quality of discussion with beneficiaries as compared to their colleagues who reside in the control district.

**HYPOTHESIS 4** – FCHVs that have access to Mobile Chautari will hold more HMG meetings as compared to their colleagues who reside in the control district.

The qualitative study will probe for deep and rich insights into the other assumptions we are investigating:

- Community members in Mobile Chautari districts report improved engagement and interaction with, and trust towards, FCHVs since FCHVs have been implementing the tool
- HMG members in Mobile Chautari districts report improved knowledge on key health issues since the FCHV began implementing the tool.

## 2. RESEARCH METHODOLOGY

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To determine the effect of Mobile Chautari, we employed a DiD design for the quantitative component and incorporated a substantive qualitative element at the endline to triangulate the findings from FCHVs and their clients. DiD is typically used to estimate the effect of a specific intervention or treatment (such as a passage of law, enactment of policy, or large-scale programme implementation) by comparing the changes in outcomes over time between a population that is enrolled in a programme (the intervention group) and a population that is not (the control group).

This quasi-experimental approach will make use of pre/post data from treatment and control groups to obtain an appropriate counterfactual to estimate a causal effect. This component of the evaluation will measure the effectiveness of the intervention by comparing outcomes of those who received Mobile Chautari (the treatment group – FCHVs, health posts, municipalities, districts etc.) in one district, i.e. Tehrathum, with those who did not (the control group) in the nearby Khotang district, which has similar pre-treatment characteristics. The pre-treatment survey administered before the roll-out of Mobile Chautari and the post-treatment survey is expected to be conducted five months after the rollout. By taking this approach, we will compare the baseline pre-treatment outcomes to post-treatment outcomes within and across the treatment groups.

The qualitative component will be conducted across all three intervention districts, i.e. Tehrathum, Darchula and Rautahat, during endline study. We will use Focus Group Discussions (FGDs) and In-Depth-Interviews (IDIs) with FCHVs and people in the communities, and observations of HMG meetings to explore the FCHVs' confidence, skills, and knowledge, as well as the communities' perception of FCHVs, the tool, and the reformatted HMGs.

### 2.1 QUANTITATIVE RESEARCH DESIGN

Impact evaluations measure the effectiveness of an intervention by comparing outcomes of those who received the intervention (FCHVs, health posts, municipalities, districts, etc.) with those who did not. While there are several research designs that permit this, randomised evaluations are generally considered the most rigorous, and reduce the risk of biased results through the act of random assignment and the presence of a control group. However, a credible experiment requires a sufficiently large sample and for there to be an even balance of key pre-treatment covariates, particularly in the areas that might influence take-up of the intervention and outcomes of interest. In the preliminary discussions regarding the appropriate research design we realised that it was not feasible to conduct a randomised experiment; instead, we opted for a design that allowed for the potential to pursue the DiD technique, a quasi-experimental technique commonly used in econometrics.

In a randomised experiment, the outcomes of two separate groups are being compared, typically at one point in time, and this requires balance of pre-treatment covariates particularly on characteristics that may influence take-up and outcomes. But this evaluation with the DiD approach draws on panel data and therefore we can relax that assumption of balance. For the DiD to be credible, that is to satisfy the common trend assumption, we do not actually need the average level of knowledge or efficacy to be the same in Tehrathum as it is in Khotang. What we do need is for the average rate at which knowledge or efficacy is increasing/decreasing to be at similar rates or along a similar trajectory in both groups. There is no statistical test for this assumption, but given the relatively short time-frame of this pilot evaluation – approximately five months – and the careful selection process of the treatment and control districts<sup>4</sup> to ensure the FCHVs were as similar as possible, this project should have the best possible chance of meeting the common trends assumption required by the DiD model at the endline.

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<sup>4</sup> The selection criteria for the control district is outlined in Section 2.4

Although the design lacks random assignment, we have incorporated the best features of an experiment, collecting individual data from the same participants before and after the training and mHealth intervention was rolled out. Further, the extensive research carried out in advance of the baseline study, capturing both individual and community-level characteristics, gave us crucial insights into which municipalities and health posts in Khotang would be the most appropriate match for FCHVs in Tehrathum. For this baseline study the data from 734 FCHVs in Khotang and Tehrathum have been analysed against each other to determine how similar these women are to each other on pre-treatment covariates and outcomes of interest.

We targeted a core sample of approximately 800 FCHVs equally divided into the treatment areas in Tehrathum and control areas in Khotang during baseline study. The survey was carried out simultaneously in the treatment and control districts during September 2019. The same measures will be administered in the final phase of the evaluation (after approximately five months) to determine the average difference across groups, as well as within groups from pre- and post-treatment.

## 2.2 STUDY SITES

The baseline research took place in 14 municipalities across two districts – Tehrathum (6) and Khotang (8)<sup>5</sup>. We selected FCHVs from eight municipalities in Khotang as the control group because the district was the most similar to the treatment district of Tehrathum in terms of key demographic profile and health indicators that may affect take-up of the mHealth intervention, thus improving the power of the study and our chances of detecting an effect in the population, if one exists. The sampling unit for the study was at the Health Facility (HF) level and it captured all FCHVs reporting to the selected HFs except for some FCHVs who were unavailable on the survey dates.

### Tehrathum

Tehrathum is a hilly district in Province One and is the smallest of the three pilot districts in terms of area (679 km<sup>2</sup>) and population (101,577). Tehrathum was selected as the primary treatment district for this evaluation study because of the adequate number of FCHVs with mobile ownership and active functioning HMGs. Tehrathum itself is a relatively well-developed district in Nepal with around 15 per cent of its population living under the poverty line, a Human Development Index (HDI) of 0.53 and a literacy rate of 74.6 per cent, higher than Nepal's national literacy rate of 63.5 per cent.

Hinduism is the dominant religion in Tehrathum (52 per cent) followed by Kirat (33 per cent). Janajati is the dominant caste with 36 per cent of the population, followed by Brahmin (19 per cent) and Chhetri (13 per cent). Around 50 per cent of people in the district speak Nepali as their first language followed by Limbu (34 per cent) and Tamang (6 per cent)<sup>6</sup>.

### Khotang

Khotang is a district also located in province one from where the control group of FCHVs were selected for the evaluation. The district is a much larger district compared to Tehrathum with an area of 1591 km<sup>2</sup> and a population of 206,312, 53 per cent of whom are women<sup>1</sup>. It is a slightly less developed district compared to Tehrathum, with 25 per cent of population living under poverty line, an HDI of 0.49. The literacy rate is 69 per cent, less than in Tehrathum but higher than Nepal's national literacy rate of 63.5 per cent.

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<sup>5</sup> We also sampled an additional 100 FCHVs from Darchula, another roll-out district, for boosting the treatment sample size in the case of an underpowered study. However, the Darchula FCHVs looked significantly different on multiple measures (i.e. education, age, experience, etc.) thus preventing any meaningful comparison. To ensure that we could satisfy the assumptions of the DiD estimator the 100 FCHVs were excluded from the quantitative baseline.

<sup>1</sup> Central Bureau of Statistics, National Population and Housing Census 2011; Available from: [www.nhssp.org.np/NHSSP\\_Archives/monitoring/Nepal\\_Population\\_Report\\_2011.pdf](http://www.nhssp.org.np/NHSSP_Archives/monitoring/Nepal_Population_Report_2011.pdf) [accessed on 02 May 2019]

Like Tehrathum, Hinduism is the dominant religion in the district (61 per cent) followed by Kirat (33 per cent). With 37 per cent of people belonging to the Janajati caste followed by Chhetri (22 per cent) and Brahmin (7 per cent). Half of the population speak Nepali as their first language.

## 2.3 SAMPLE SIZE

The target audience for the baseline study was FCHVs. We have examined the literature on mHealth interventions in a variety of contexts; however, to date there has been no published study that incorporates a quasi-experimental design of front-line health workers who are using a mHealth tool to improve communication skills and confidence. Therefore, we targeted a total sample of 800 FCHVs, split equally across treatment and control groups, before and after the intervention roll-out to ensure that our study has sufficient power to determine the impact of the mHealth tool.

We reached out to 812 FCHVs working in health posts across our treatment and control districts. Our final baseline analysis was carried out on a sample of 734 FCHVs from Tehrathum (n=363) and Khotang (n=371).

Table 1: Sample size distribution

Sample size for baseline and endline survey									
District	No. FCHVs trained in mHealth tool	Baseline Study- September 2019	Endline Study-January 2020						
		Quantitative survey	Quantitative survey		Qualitative Survey				
		Semi-Structured interview-FCHVs	Semi-structured Interview-FCHVs	mHealth tool backend usage data	In-depth Interview with FCHVs	FGD with FCHVs (# of FCHVs)	IDI - Pregnant mothers and mothers with child < 5	FGD with Mother in-law (# of participants)	Observation of HMG meeting (# of FCHVs)
Darchula	200	-	-	200	18	16	5	16	2
Rautahat	200	-	-	200	18	16	5	16	2
Teharathum	400	400	400	400	18	16	5	16	2
Khotang	400	400	400	-	-	-	-	-	-
<b>Total sample</b>	<b>1200</b>	<b>800</b>	<b>800</b>	<b>800</b>	<b>54</b>	<b>48</b>	<b>15</b>	<b>48</b>	<b>6</b>

## 2.4 SAMPLING TECHNIQUE

We anticipated the total number of mHealth recipients to be approximately 800 FCHVs in the roll-out districts (400 in Tehrathum, 200 in Darchula and 200 in Rautahat) plus an additional approximately 400 FCHVs residing in the control district of Khotang.

For the quantitative element of the evaluation we restricted the sample to all available FCHVs in Tehrathum and 400 FCHVs in Khotang. To obtain the most appropriate sample (i.e. health posts that look as statistically similar as possible) we worked with District Health Offices and HFs to understand mobile phone coverage and ownership rates in advance of the baseline study. We also gathered data on the tenure and education levels of the FCHVs within the health posts and examined other community-level characteristics to guide our sampling procedure within the control district of Khotang. Khotang has around 898 FCHVs operating across the district; to select the 400 FCHVs required for our study we first excluded all municipalities that are currently involved in a large-scale health programme called Sabal. This large-scale intervention, funded by the United States Agency for International Development (USAID), includes work with FCHVs around health and nutrition. Including these FCHVs would introduce a serious risk of bias into the effectiveness of our mHealth tool because the interventions may overlap. Using the information collected from health posts we selected health posts that met certain criteria: no participation in the Sabal programme, consistent mobile coverage, and consistent mobile phone ownership.

## **2.5 PRETESTING AND FIELD RESEARCHERS' TRAINING**

Two rounds of pretesting were done by the research team in order to check the quality of the questionnaire and to test the skipping pattern in the survey tool. The first round was conducted by BBC MA's research team with nine FCHVs in Kavre district and focused on the sequence of questions, length of questions and quality of information received. The second round was conducted in Thaha municipality of Makwanpur district after completion of the field researchers' training and focused on familiarising researchers with the tool and the validity of each question.

All field researchers were given three days of training, led by the BBC MA research team. For quality assurance, the research design and the data collection tool were reviewed by the Nursing and Social Security Division (NSSD), NHSSP-3 and the research and project teams from BBC MA in Nepal and London.

## **2.6 LIMITATIONS OF THE STUDY**

The quasi-experimental design has been designed and implemented in on order to provide causal data of how effective the mHealth tool can be, provided certain conditions are met. Though these findings will not be completely generalisable to all districts of Nepal, they will, combined with qualitative research and analysis of backend data, be able to provide insights into how to scale up such an intervention and what kind of conditions need to be met in order to ensure success.

We plan to reduce the risk of sampling bias during the endline analysis by excluding all FCHVs who do not meet the inclusion criteria, namely sufficient mobile phone coverage, mobile ownership and conducting semi-regular HMGs. We also recognise the risk of social desirability bias on the part of participants at every level.

## **2.7 MONITORING AND SUPERVISION**

Monitoring and supervision of the field activities was built into the field-based teams and was overseen by the BBC MA research team and NSSD officials. There was regular communication between the Research Agency Team Leader and the BBC MA Research Supervisor from the Kathmandu office. BBC MA ensured that the contracted enumerators and supervisors had extensive experience and familiarity with working with health systems and communities so that they could ensure the highest quality of data collection and protection.

BBC MA is committed to undertaking research that is of the highest standard and in line with General Data Protection Regulation (GDPR) requirements of the EU, and have ensured that contracted staff and organisations adhere to the same standards while dealing with both research data and participants' personal information. The BBC MA research team in Nepal and in London have worked closely with the contracted researchers to develop a clear plan for quality assurance of the data collection process. This includes at least 5 per cent spot check, 15 per cent back check, and 5 per cent accompanied interviews by senior researchers in the field. The BBC MA research team, along with NSSD officials, made surprise visits to ensure that research field teams are following the process properly.

The field researcher or the enumerator collecting the data obtained informed consent (verbal or written) before proceeding with any research method, to safeguard data confidentiality. Enumerators were trained by the BBC MA research team and expert trainers; they were instructed to prioritise respondents' privacy and comfort over everything.

## **2.8 DATA MANAGEMENT AND ANALYSIS**

The contracted field teams were responsible for management of quantitative data under the supervision of BBC MA. Data management included processing, coding and re-coding, entering into SPSS and cleaning



of quantitative data. To ensure protection of research participant's privacy, BBC MA ensured that we were collecting the minimum amount of personal data. They also employed processes to protect both research data and personal information, which included:

- Using identification numbers in place of FCHV names in the data sets during analysis
- Using password-protected files while transferring datasets and personal information
- Employing strict data security measures to ensure that the BBC MA server is well protected to prevent any leakage of data.

## **2.9 ANALYSIS**

Analysis was performed in two stages: first, descriptive analysis was undertaken in order to understand the sociodemographic status of FCHVs, their work pattern and access to and usage of mobile phone in both treatment and control districts. Chi-square tests were also performed in this analysis to identify where any difference between the two sampled districts was significant, to gain deeper understanding of similarities between FCHVs in Tehrathum and in Khotang.

To understand the difference in levels of knowledge and efficacy of the sampled FCHVs in the two districts, a range of quantitative analysis methods were undertaken. Inferential analysis and regression modelling (which controls for potential confounding sociodemographic factors, i.e. age, education, years of experience, and having been trained in the past two years) was conducted to compare key differences between FCHVs in the two districts in the key outcomes within the Theory of Change (ToC).

The BBC MA research team has conducted all analysis using the statistical software programme SPSS version 10.1.

## **2.10 ETHICS PRINCIPLES**

The research methodology, including ethical principles, was designed by BBC MA and involved close working with NSSD, NHSSP and MEOR. The final design was submitted to the Nepal Health Research Council formal ethical approved was received on 14 August 2019.

Rigorous and action-oriented research is integral to BBC MA's approach. The BBC MA Research Group has an outstanding reputation for the impact, creativity, rigour and measurement of its work, underpinned by a research team that has been described in 2017 by the UK Department for International Development (DFID) assessment as "world class".

The independence and integrity of BBC MA's research is underpinned by an extensive quality assurance framework and adherence to the highest standards of rigour. The overarching framework we use, Assuring Integrity in Measurement (AIM), was developed drawing on existing research standards, protocols and guidelines (e.g. Bond's evidence principles, the Market Research Society Code of Conduct). AIM incorporates a formal review and sign-off process at each stage of the research. In-country research staff play a key role in quality assurance during fieldwork, including cognitive and pilot testing of instruments, extensive briefing and training of fieldwork teams and supervising the quality of data collection.

In this study, as outlined in the sections above, BBC MA researchers worked closely with the project team on the baseline assessment design and questionnaire in order to ensure accurate measurement of baseline indicators in both districts that match the project objectives, communication framework and the nuance of the mHealth content. An integrated project and research team creates a strong environment for evaluation implementation owing to the researchers' nuanced understanding of both the formative research conducted for this project and the programming content. In terms of implementation the research team worked to the strict ethical protocols as outlined above (and as per the original design) to ensure that the fieldwork was implemented by the partner agency appropriately. A high level of agency monitoring in the field took place, alongside rigorous checks on data quality in terms of entry and management. The analysis and report has been reviewed and signed off by the Senior Research Manager based in London,

in order to provide an impartial and independent assessment of quality and integrity (in line with our AIM process outlined above).

### 3. RESEARCH FINDINGS

#### 3.1 SOCIODEMOGRAPHIC PROFILE OF FCHVs

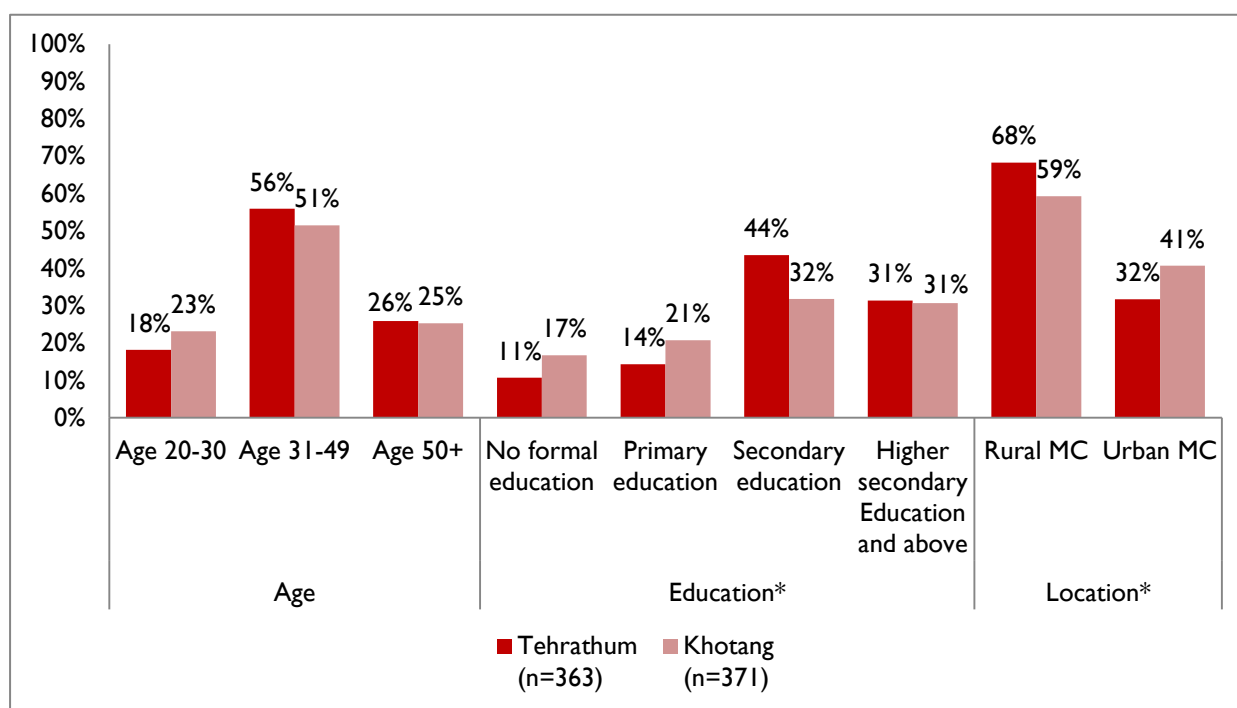
This section describes FCHVs in the two study sites of Tehrathum and Khotang, their demographic profile, the training they received, their working practices and their motivations for becoming an FCHV. Descriptive analysis was carried out to lay out what the profile of FCHVs looks like. For certain sociodemographic factors, inferential statistical tests were carried out using Chi-square tests to examine if these descriptive differences were significant. These sociodemographic factors were tested at the inferential level as they are judged to influence whether FCHVs would take up and benefit from the mHealth tool across the course of the project.

##### 3.1.1 Demographic information

A total of 734 FCHVs were interviewed across the two districts, with a near equal number across both the treatment and control districts. The majority of the FCHVs in both the districts are younger and educated. Across the sample, almost three-quarters (74 per cent) of FCHVs reported their age to be under 50 years; however, there was no significant difference in terms of age between the control and treatment groups. In contrast, there was a significant difference on levels of education completed by FCHVs between the two districts. For example, three-quarters (75 per cent) of FCHVs in Tehrathum reported completing secondary education or above compared to nearly two-thirds (63 per cent) in Khotang.

In addition, there was also a significant difference in the location of FCHVs between the two districts. In Tehrathum, more FCHVs (68 per cent) reported that they were from rural municipalities compared to Khotang (59 per cent). However, this does not have an impact on their ability to carry out their work in terms of distance travelled, as most both live and work in the same municipality (see the Section 3.1.4).

Figure 4: Demographic profile of FCHVs in Tehrathum and Khotang



Base: all survey respondents (n=734)

\*Differences are statistically significant with Pearson Chi-square value <0.05

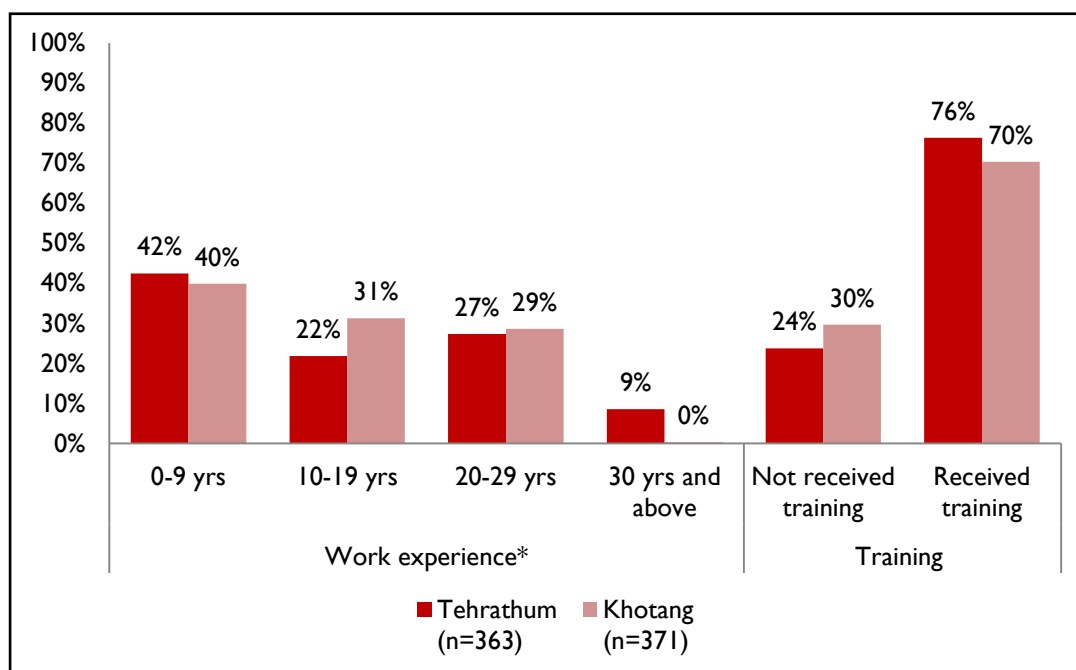
Table 2: Crosstabulation of respondents' age by education level of respondent

Age category		Education category				Total	
		No formal education	Primary education	Secondary education	Higher secondary education and above		
Respondents age	Age 20-30	Count	0	3	48	101	152
		% within education level of	0%	2%	17%	44%	21%
	Age 31-49	Count	31	58	180	125	394
		% within education level of	31%	45%	65%	55%	54%
	Age 50+	Count	70	68	48	2	188
		% within education level of	69%	53%	17%	1%	26%
Total		Count	101	129	276	228	734
		% within education level of	100%	100%	100%	100%	100%

### 3.1.2 Experience and training

FCHVs are meant to receive 18 days' basic training on becoming a FCHV and regular formal refresher training, with further training on a more *ad hoc* or needs basis. Overall, 40 per cent of FCHVs had completed less than 10 years of service. There was a significant difference between the two districts in terms of length of service. For example, nine per cent of FCHVs in Tehrathum had over 30 years of experience, whereas no one had this length of service in Khotang. In contrast, there was no significant difference between the districts in terms of exposure to training. A comparable proportion of FCHVs reported receiving some training in the past two years (76 per cent in Tehrathum and 70 per cent in Khotang). Most of these trainings were delivered in the HFs, by the government, as reported by 84 per cent of FCHVs in Tehrathum and 88 per cent in Khotang. However, International and Non-governmental organisations (INGOs/NGOs) are also a large provider of FCHVs' training – more than one-third of FCHVs across the study districts reported having received training from such organisations.

Figure 5: Demographic Profile of FCHVs in Tehrathum and Khotang



Base: all survey respondents (n=734)

\*Differences are statistically significant with Pearson Chi-square value <0.05

There is variation in the types of health issues FCHVs reported were covered in the training, among which RMNCH issues were the most common ones (see Table 3).

Table 3: Health issues on which FCHVs reported having received training in Tehrathum and Khotang

Health issues covered in training*	Tehrathum (n=363)	Khotang (n=371)
Health of mothers and baby in pregnancy	54%	97%
FP	49%	51%
Neonatal health care	39%	76%
Immunisation	23%	51%
Maternal nutrition	25%	80%
Abortion	64%	2%
Child nutrition	24%	65%
Diarrhoea	18%	43%
Reproductive health	21%	28%

\*multiple response

### 3.1.3 Motivation and incentives

Descriptive analysis was carried out to understand the different motivations for FCHVs in undertaking their role (inferential statistical testing to see if they were significantly different was not carried out as these are not factors which we expect to influence uptake of the mHealth tool). This data was collected to understand the basic profile of the FCHVs within the intervention.

There were similar responses in both districts. The same proportion of FCHVs in both treatment and control districts (37 per cent) mentioned that it was an opportunity to obtain new knowledge and skills. Other important factors included a religious duty (mentioned by 22 per cent in Tehrathum and 19 per cent in Khotang), helping communities to be healthier (22 per cent and 25 per cent) and respect and recognition from others in the community (14 per cent and 17 per cent).

Table 4: Percentage distribution of FCHVs' motivational factors to become an FCHV in Tehrathum and Khotang

Motivational factors*	Tehrathum	Khotang
Opportunity to obtain new knowledge or skills	37%	37%
People in your community can be healthier	22%	25%
As a religious duty (Dharma) or opportunity to serve the community	22%	19%
Respect and recognition from others in the community	14%	17%
Support or inspiration from others	4%	5%
Enjoyable, stimulating, and or interesting activities	6%	1%
Contribution to family income	3%	4%
Self-efficacy or economic reason	4%	0%

Base: all survey respondents (n=734), \*multiple response

In both treatment and control districts, over 90 per cent of FCHVs reported that they received a dress allowance in the last year. Only 55 per cent reported receiving the full dress allowance of NPR 7,500, although the average amount received is NPR 7,141 and 85 per cent reported receiving more than NPR 7,250. It is possible that receiving the full dress allowance is underreported where FCHVs have forgotten how much they received in the last year, or that they reported receiving less because the researchers' presence. Though the transportation allowance used to be distributed every month as per government policy this has now shifted to yearly for more than 50 per cent of FCHVs. Within the new federal system in Nepal, all incentives are issued by local government; many seem to have shifted to an annual payment and increased the monthly value to NPR 1,000 per month in both treatment and control districts.

### 3.1.4 FCHV working practices

Overall, 42 per cent of FCHVs reported working for three or more days over the previous week, 48 per cent had worked one or two days and ten per cent said that they had not worked for any days in the past week. Similarly, around half of FCHVs (48 per cent) usually work for 120 minutes or more on working days whereas another 25 per cent work for less than an hour and 27 per cent work for 60–120 minutes. FCHVs may have to work more hours during weeks with special activities such as vitamin A distribution or polio campaigns.

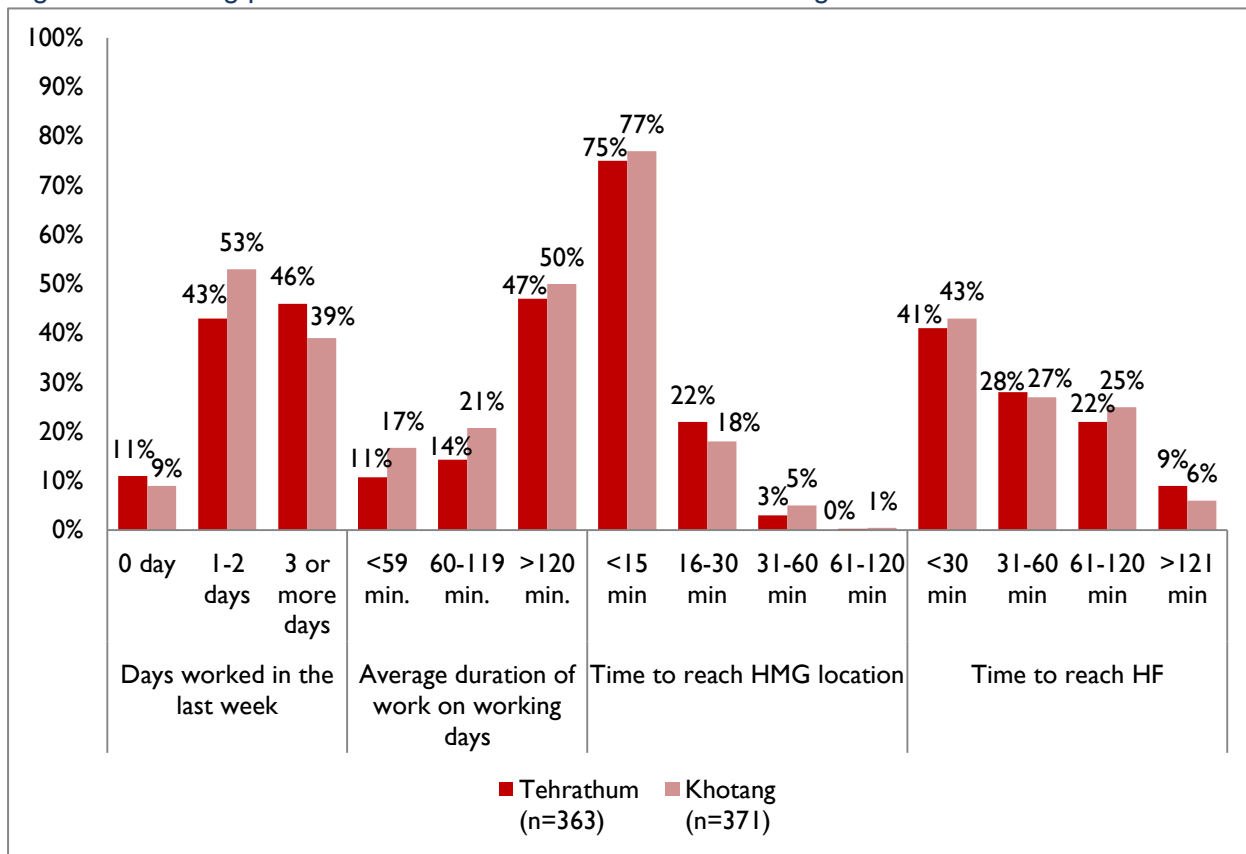
Looking at the variation by district, the working practices of FCHVs in Tehrathum and Khotang are broadly similar. The proportion of FCHVs who did not work in the past week was slightly higher in the treatment group (56 per cent) as compared to the control group (44 per cent). Breaking working practice into three categories of low, medium and high activity<sup>7</sup>, FCHVs from the control group are slightly more active: 37 per cent of FCHVs in the control group spent three or more days working and worked for more than two

<sup>7</sup> FCHVs were categorised into low activity, medium activity and high activity, based on their working style. Low-activity are those FCHVs who worked a maximum of one day in the last week, usually spending less than an hour on FCHV work on working days, medium-activity for one to three days in the last week, usually spending 60–90 minutes working in a day, and high-activity FCHVs are those who worked for more than three days in the last week and usually spent more than two hours working in a day.

hours per working day, compared to 32 per cent in the treatment group. FCHVs with higher education and aged between 31 and 50 years were found to be the most active demographic group.

Almost all FCHVs live in the same ward where they work and most of them hold their HMG meetings at or close to their home. Over 95 per cent of FCHVs take less than 30 minutes to reach their HMG and three-quarters travel less than 15 minutes. The majority of FCHVs reach their HF and HMG sites by walking. A small proportion of FCHVs (9 per cent) walk for more than two hours to reach their HF. Slightly more than half of FCHVs (61 per cent) reported having less than 50 households in their catchment area (54 per cent in Tehrathum and 43 per cent in Khotang). While comparing the data by districts, an equal split of FCHVs (7 per cent and 6 per cent) reported covering more than 100 households in treatment and control districts.

Figure 6: Working pattern of FCHVs in Tehrathum and Khotang



Base: all survey respondents (n=734)

Household visits have not been a mandatory requirement within the government FCHV policy since at least 2009, yet 77 per cent reported making at least one household visit in the past 30 days. Among those, half of the FCHVs (51 per cent) reported visiting 10 or more households in the last month. Comparing the data by district, more FCHVs from the treatment district (31 per cent) reported not conducting any household visits in the last month compared to control district (16 per cent). In line with the qualitative formative research, FCHVs from age group 31–50 conduct more household visits.

The FCHV role includes health promotion, distribution of commodities and support to health campaigns and covers health issues across RMNCH plus newer areas including gender-based violence and mental health. When we asked FCHVs what activities they undertake, overall 72 per cent mentioned counselling on pregnancy danger signs (66 per cent in Tehrathum and 77 per cent in Khotang), followed by 61 per cent reporting counselling on maternal nutrition (48 per cent in Tehrathum and 72 per cent in Khotang). Distribution of Iron and Folic Acid (IFA) and promotion of immunisation were also mentioned by 48 per cent and 53 per cent of FCHVs in Tehrathum and 70 per cent and 45 per cent in Khotang.

## 3.2 HEALTH MOTHERS' GROUP MEETINGS

This section describes FCHVs' working practices, across treatment and control districts, in relation to HMG meetings. HMG meetings are a central feature of the FCHV programme in Nepal, where invited members of the community meet monthly to discuss different health issues. One study in Nepal found that increased participation in HMG meetings helped communities to be more aware of their local FCHVs and increased demand for health services<sup>8</sup>. Descriptive analysis only has been carried out looking at these differences at this stage.

### 3.2.1 FCHVs are conducting HMG meetings regularly

Most FCHVs in both treatment and control districts reported conducting at least four or more HMG meetings in the last six months (93 per cent) and three-quarters reported conducting one every month. Although there is no practical way to verify this claim, the formative research in Tehrathum found that some FCHVs do not conduct regular HMG meetings; the 2014 FCHV National Survey Report<sup>iii</sup> found that only 46 per cent of FCHVs mentioned conducting HMGs when asked what activities they undertake and so the frequency of HMG meetings may have been overreported during the survey. In line with the formative research that indicated older FCHVs were least likely to conduct HMGs, only four per cent of FCHVs aged over 50 years reported conducting four or more HMG meetings in the last six months. The reported length of meetings varied across the two districts with 48 per cent of FCHVs in Tehrathum conducting meetings of an hour or more, compared to 70 per cent in Khotang.

FCHVs were also asked about the members' active participation in HMG meetings. Younger FCHVs with less than 10 years' experience reported the lowest levels of participation at their last HMG meetings compared to those who are more experienced and aged between 31 and 50 years. Less than a quarter of FCHVs across treatment and control districts reported spending more than 30 minutes preparing for the HMG meeting – 30 per cent in Tehrathum and only 14 per cent in Khotang. Younger FCHVs, those who are less experienced and higher-educated FCHVs tend to report longer preparation times.

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<sup>8</sup> Morrison, J et al. "Understanding how women's groups improve maternal and new-born health in Makwanpur, Nepal: a qualitative study." *International health* vol. 2,1 (2010): 25-35. doi: 10.1016/j.inhe.2009.11.004 Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5104268/pdf/emss-70228.pdf> [accessed on 13 November 2019]

<sup>iii</sup> Female Community Health Volunteer National Survey Report, MoHP, 2014



Table 5: Percentage distribution of FCHVs who reported conducting HMG meetings

Characteristics	Meetings in the last 6 months			Duration of last HMG meeting				Number of engaged participants in HMG				Meeting preparation			
	Less than 4	More than 4	Don't Know	0-60 minutes	61-120 minutes	>121 minutes	Don't Know	0-10	11 to 20	>21	Don't know	0-30 minutes	31-60 minutes	>61 minutes	Don't know
<b>Districts</b>															
Tehrathum	6%	93%	1%	50%	39%	9%	1%	66%	28%	5%	2%	68%	21%	9%	3%
Khotang	7%	93%	0%	30%	51%	19%	0%	71%	22%	7%	0%	86%	13%	1%	0%
<b>Age</b>															
20-30 years	11%	89%	0%	35%	43%	21%	1%	77%	19%	3%	1%	69%	19%	10%	2%
31-49 years	5%	95%	0%	40%	46%	13%	1%	62%	30%	7%	1%	77%	18%	3%	2%
50+	4%	96%	0%	45%	44%	10%	1%	75%	19%	6%	1%	82%	14%	3%	1%
<b>Education</b>															
No Formal Education	2%	96%	2%	46%	43%	11%	1%	75%	16%	7%	2%	85%	12%	1%	2%
Primary Education	6%	94%	0%	39%	49%	12%	1%	69%	23%	7%	1%	83%	15%	2%	1%
Secondary Education	6%	94%	1%	39%	47%	14%	1%	66%	29%	4%	1%	74%	19%	5%	2%
Higher Secondary Education and Above	8%	91%	0%	40%	43%	17%	0%	68%	25%	7%	0%	73%	18%	8%	2%
<b>Years of experience</b>															
0-10 years	9%	90%	1%	36%	45%	17%	2%	69%	26%	4%	1%	72%	19%	7%	2%
11-20 years	4%	96%	1%	37%	48%	15%	1%	61%	29%	10%	1%	78%	17%	4%	1%
21-30 years	4%	96%	1%	48%	44%	9%	0%	74%	21%	4%	1%	83%	14%	2%	1%
<b>Trainings</b>															
Yes	4%	96%	0%	39%	48%	14%	0%	70%	25%	5%	1%	76%	18%	6%	1%
No	13%	85%	2%	44%	39%	15%	2%	65%	25%	8%	2%	80%	16%	1%	4%

Base: all survey respondents (n=734)

### 3.2.2 Most FCHVs are discussing health-related issues during HMG meetings

While 79 per cent of FCHVs in the treatment district reported discussing health-related issues, slightly more than half (56 per cent) discussed health issues during HMG meetings in the control district. In terms of the health-related issues that they discussed, overall a majority of FCHVs mentioned discussing maternal nutrition (64.8 per cent) and FP-related issues (61.7 per cent). FCHVs also reported discussing newborn care and pregnancy-related danger signs and symptoms. However, there is very limited scope to

cross-check these results as only nine per cent of FCHVs across both districts reported the presence of an external representative (e.g. another member from the HF or an NGO/INGO member) in any of the HMG meetings conducted in the last three months. One-third of FCHVs also reported discussing savings and investment topics during their HMG meetings.

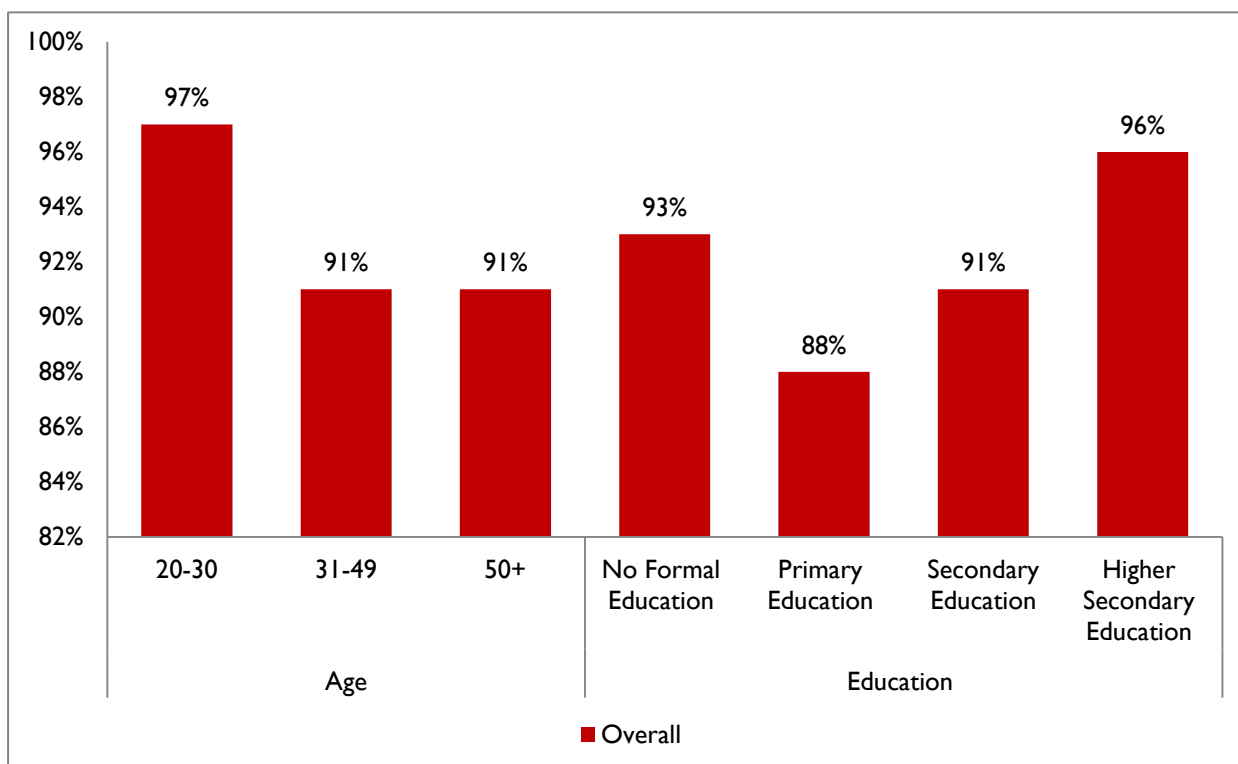
### 3.3 MOBILE PHONE COVERAGE

This section describes the mobile phone usage and consumption patterns of FCHVs in both treatment and control districts. Mobile phone ownership is a key indicator that may affect uptake of the mHealth tool by FCHVs; as such, descriptive analysis was conducted to understand if there were differences between the two sets of FCHVs and inferential statistical testing was conducted to check if this difference was significant.

#### 3.3.1 Mobile ownership among FCHVs is high in treatment and control districts

Over 90 per cent of FCHVs in both the treatment and control sites reported having their own mobile phone and reported that they could access the phone 24 hours a day. The formative research also found similar results: in a sample of 30 FCHVs, it was found that 94 per cent of FCHVs had their own mobile phone in Tehrathum. A smaller proportion of FCHVs reported not owning a mobile phone (7.5 per cent), while less than one per cent do not have access to a phone within their household across both treatment and control sites. Out of 734 participants, only 45 said that their mobile phone was not fully functional. Figure 7 below shows that mobile phone ownership is highest amongst 20 to 30-year-olds and lowest amongst FCHVs aged 41 to 50 years. Education levels do not appear to influence mobile phone ownership: FCHVs with no formal education have higher rates of ownership than primary- and secondary-educated FCHVs. No major variation was found in the personal mobile access by age group in either treatment or control districts.

Figure 7: FCHVs’ mobile phone ownership by education and age



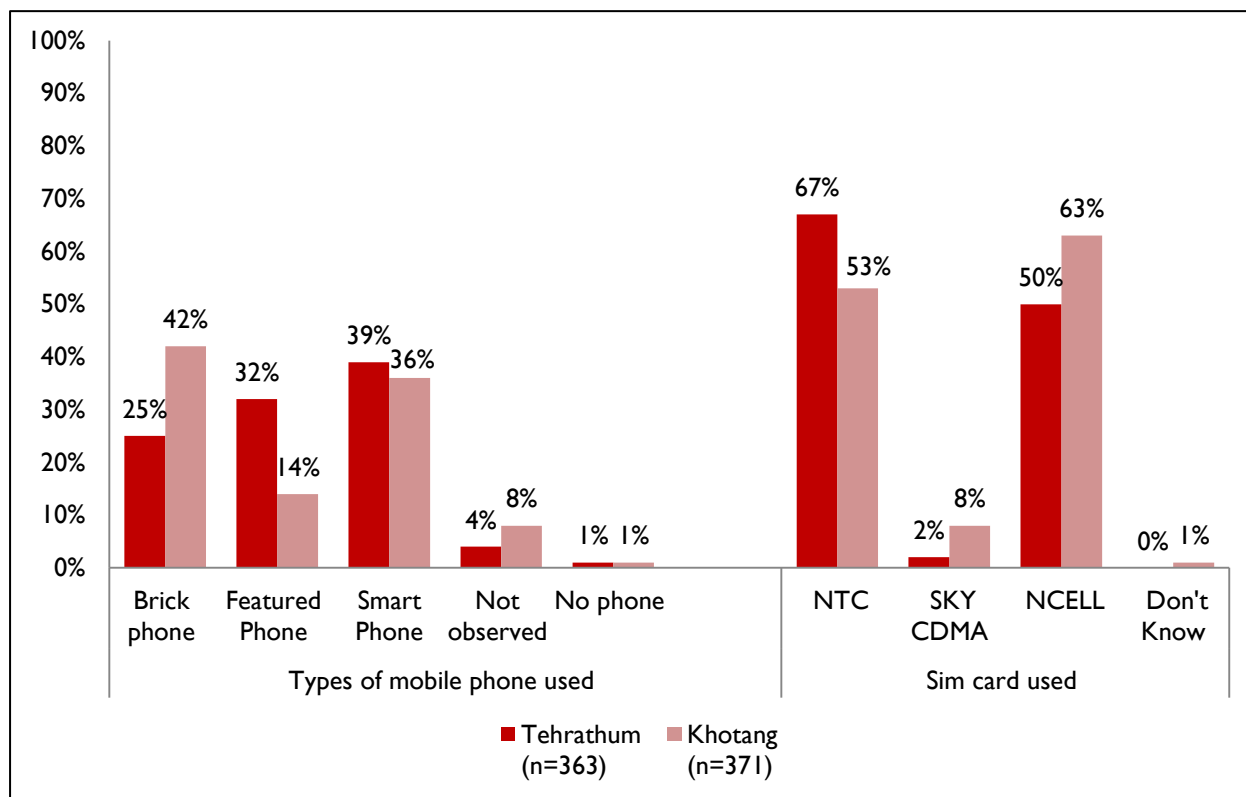
Base: all survey respondents (n=734)

#### 3.3.2 FCHVs are using different types of handset but just two mobile network operators

The survey revealed that overall 38 per cent of FCHVs have a smartphone, with brick phones (34 per cent) and feature phones (23 per cent) the next most common phones. While at the district level the most

common phone in Khotang was the brick phone (42 per cent), in Tehrathum the most common phone was a smartphone (39 per cent). Smartphone ownership was highest among those aged 31 to 40 and those that had completed higher education in Tehrathum. Overall, the type of SIM card used is equally split between NTC (49 per cent) and Ncell (46 per cent) with Sky CDMA (owned by NTC and able to use the Mobile Chautari toll-free number) used by just a few FCHVs. Ncell is more popular in Khotang (63 per cent) and NTC more popular in Tehrathum (67 per cent).

Figure 8: Types of phone among FCHVs and SIM card used by FCHVs

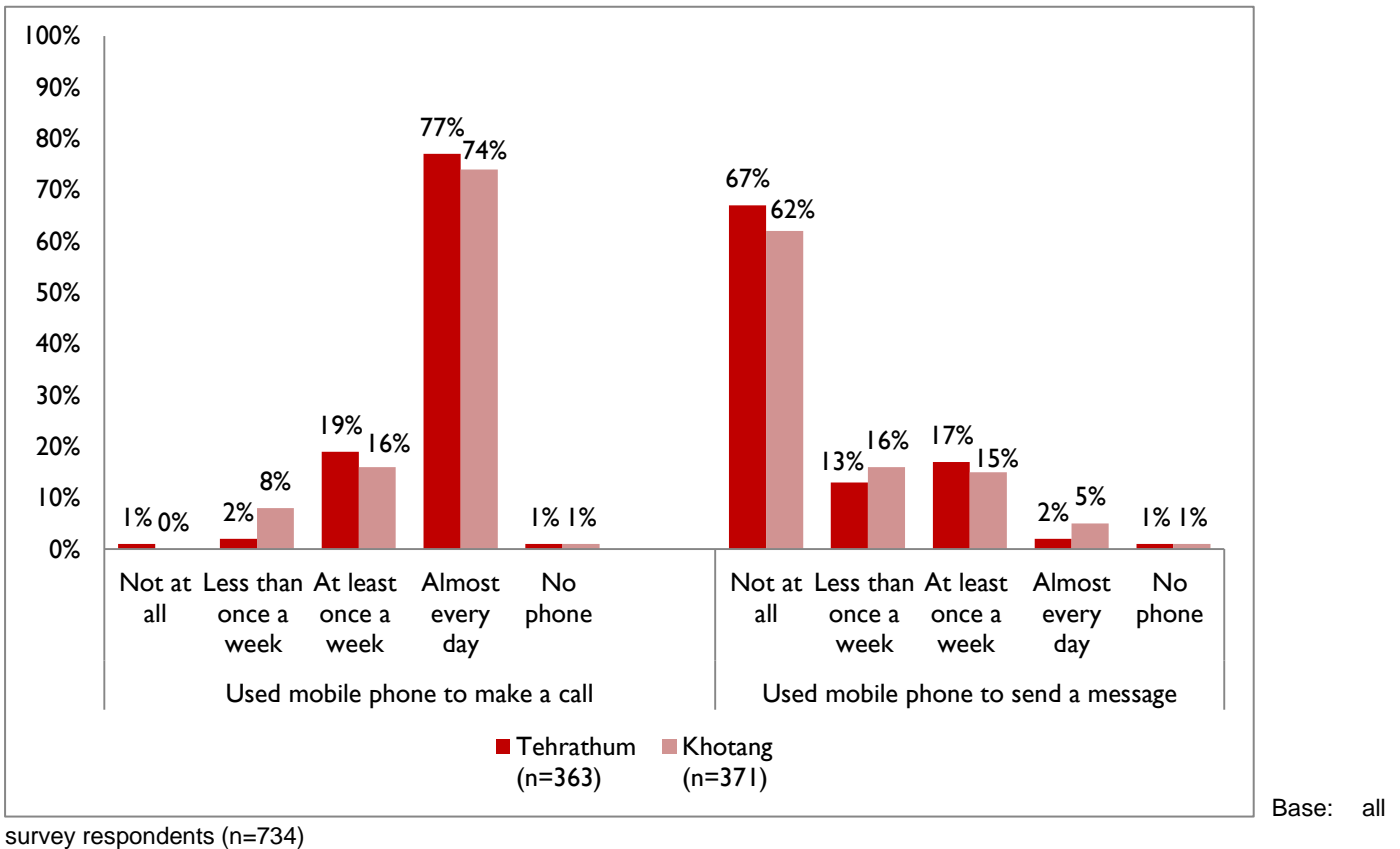


Base: all survey respondents (n=734)

### 3.3.3 Frequency of using mobile phone to speak and message among FCHVs

Ninety-four per cent of FCHVs from both districts use their mobile phone at least once a week to communicate orally with others, while 76 per cent of FCHVs use their mobile phone at least once a day. Use of text messages is low with 67 per cent and 62 per cent of FCHVs in Tehrathum and Khotang respectively reporting that they never text. Most FCHVs used their mobile phone almost every day to make a call (77 per cent in Tehrathum and 74 per cent in Khotang). Almost all FCHVs in both districts reported using their mobile phone to call family and friends, while most (85 per cent) also mentioned that they call HF staff on their mobile phone.

Figure 9: Proportion of FCHVs reporting using mobile phone to speak and message with someone



### 3.4 KNOWLEDGE AND EFFICACY

This section illustrates the FCHVs’ knowledge on different maternal and child health issues. An overall analysis was conducted, which examined the number of correct answers reported by FCHVs across all health issues. This analysis used logistic regression (which controls for key variables which may be affecting the outcome) to examine the differences in this overall measure between the two districts. A more nuanced analysis, which looked in detail at the specific correct answers for each health issue across the FCHVs in the two districts, was also conducted; however, this analysis remains only at the descriptive level at this stage.

#### 3.4.1 Summary of FCHVs’ knowledge on key health issues

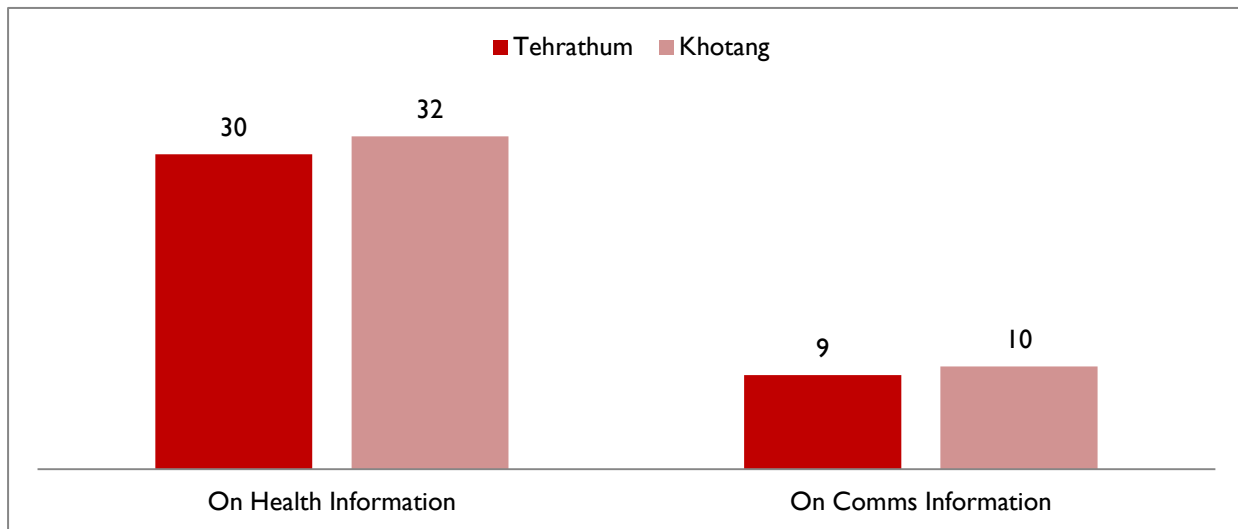
FCHVs in Khotang demonstrated higher levels of knowledge on both key health issues. The survey assessed the knowledge of FCHVs on key health issues such as: IFA, preparation for delivery, danger signs during pregnancy and the post-partum period, breastfeeding, neonatal care, delaying first pregnancy and uterine prolapse.

When FCHVs were asked about their understanding on these different key maternal and child health issues, regression analysis (which controls for other factors which may explain an outcome) suggested that FCHVs from Khotang could name 32 correct practices around these various health behaviours across 15 questions, 11 of which were multiple response questions<sup>9</sup>. In comparison, the average number of correct responses among FCHVs in Tehrathum was 30. These results are significant below the traditional

<sup>9</sup> Unprompted questions allowed FCHVs to provide multiple correct responses within single questions with no upper limit on the number of correct answers. The number of correct responses across multiple questions was added together for each FCHV and these aggregate correct responses were given as an indicator of knowledge.

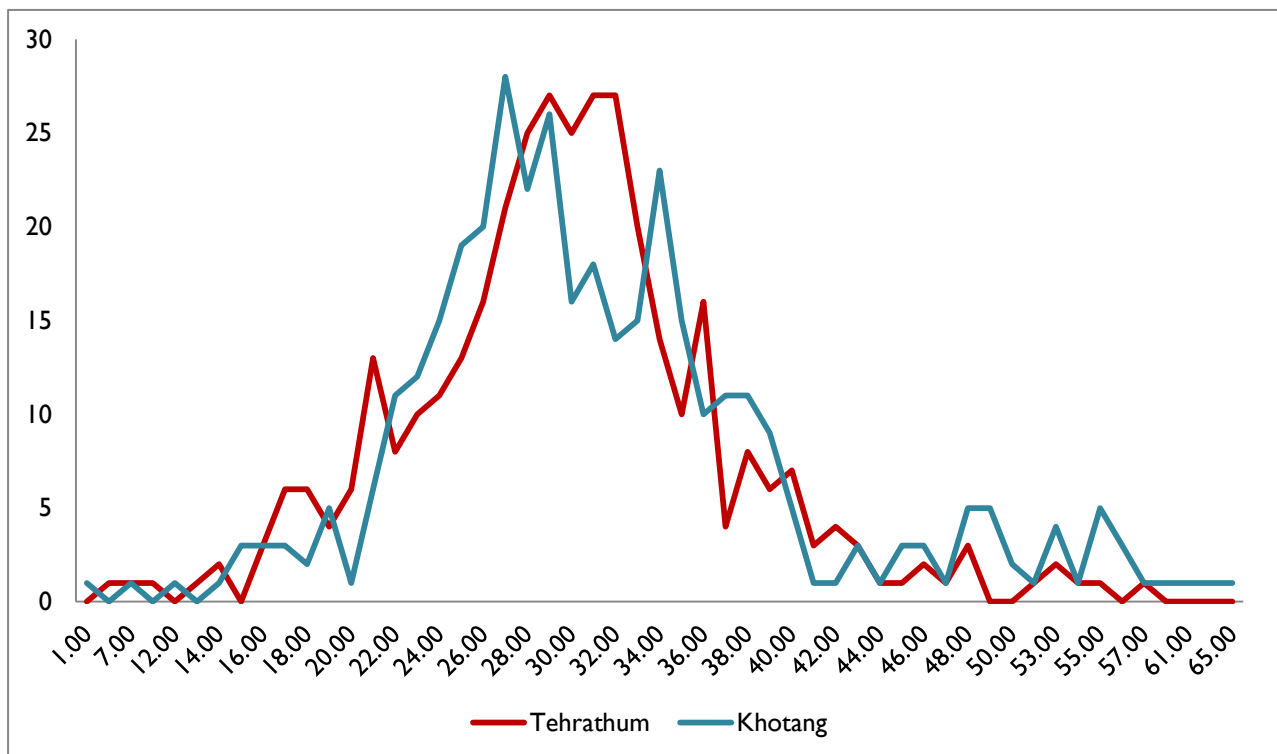
p<0.05 threshold. This indicates that FCHVs in Khotang are significantly more likely to be able to identify more correct answers on key health issues than those in Tehrathum.

Figure 10: FCHVs’ average number of correct knowledge scores on key health issues and on how to communicate with clients



Overall, for knowledge on the key health issues, the highest number of correct responses provided for the health content was 65. Across both districts, FCHVs are, on average, able to provide 31 correct responses.

Figure 11: Distribution of correct responses in ‘knowledge of health issues’ by district



### 3.4.2 FCHVs' detailed knowledge on different health issues

#### 3.4.2.1 FCHVs' knowledge on IFA

Overall, FCHVs have good basic knowledge of IFA but lack detailed understanding of its benefits, which could make them less effective at behaviour change and health promotion. When FCHVs were asked when and how often women should take IFA tablets during pregnancy most (over 90 per cent) gave a correct answer, irrespective of district (Table 6). However, knowledge on the benefits of IFA beyond treating anaemia was much lower. Less than half of FCHVs reported that IFA improves the health and wellbeing of the baby (43 per cent in Tehrathum and 42 per cent in Khotang) and a slightly smaller proportion mentioned that IFA tablets give energy to pregnant women during pregnancy (41 per cent in Tehrathum and 36 per cent in Khotang). Very few FCHVs across both districts (5.8 per cent in Tehrathum and 9.2 per cent in Khotang) stated that IFA can reduce the risk of a baby being born too soon.

Table 7: FCHVs reported knowledge on IFA tablets

When and how often women should take IFA tablets and benefits of IFA tablets	Tehrathum	Khotang
<b>How often should women take IFA tablets?</b>		
Once a week	0%	1%
Once a day	94%	97%
Don't Know	6%	2%
<b>When should IFA tablets be taken? (answers deemed correct)*</b>		
After 3 months until 45 days post-delivery	89%	95%
After 4 months until 45 days post-delivery	15%	13%
After conceiving until 45 days post-delivery	18%	6%
After 3 months until more than 45 days post-delivery	18%	0%
During the 9 months of pregnancy	1%	1%
Others <sup>10</sup>	19%	25%
<b>Why should pregnant women take IFA tablets? (answers deemed correct)*</b>		
To help prevent/treat anaemia	89%	90%
To improve the health/wellbeing of the baby	43%	42%
To help give pregnant women energy	41%	36%
To help the baby grow, reducing the risk of baby being too small	21%	22%
To reduce the risk of baby being born too soon	6%	9%
Others <sup>11</sup>	2%	1%

Base: all survey respondents (n=734), \*multiple response

#### 3.4.2.2 FCHVs' knowledge on birth preparedness

Overall, most FCHVs from both districts seem to have better knowledge in terms of birth preparedness and listed most of the steps that pregnant women and their families can take to prepare for delivery, than on other questions of birth-preparedness. Saving or arranging money for transportation and delivery costs

<sup>10</sup> Others include: From three months until delivery; two months to nine months; after four months; and after three months

<sup>11</sup> Others included: foetal health; blood flow; and mother's health

was the most common step reported, with just a few FCHVs unaware of what birth preparedness means (see Table 8).

Table 8: FCHVs' reported knowledge on birth preparedness

Steps a pregnant woman and her family can take to prepare for delivery (answers deemed correct)*	Tehrathum	Khotang
Save or arrange money to pay for transportation and other delivery costs	68%	78%
Save money for emergency	69%	51%
Identify means of transportation	58%	46%
Pack a bag/prepare items needed during birth (e.g. clean clothes)	45%	56%
Keep a list of contacts and phone numbers (e.g. FCHV, Ambulance, Transport, blood donors)	40%	24%
Identify HF Skilled Birth Attendant for the delivery in advance	35%	51%
Attend Antenatal Care (ANC) check-ups	18%	21%
Identify three potential blood donors	18%	12%
Identify family friends to help in an emergency	15%	10%
Discuss plan with family	11%	18%
Know the baby's due date	5%	19%
Safe delivery preparation	3%	2%

Base: all survey respondents (n=734), \*multiple response

#### 3.4.2.3 FCHVs' knowledge on danger signs during pregnancy and post-partum period

Almost all FCHVs were able to provide at least one pregnancy and post-partum danger sign; vaginal bleeding and severe headaches topped the lists for both pregnancy and post-partum questions. However, beyond vaginal bleeding, the breadth of knowledge appears quite low with most of the common danger signs identified by less than 50 per cent of FCHVs.

Table 9: FCHVs' reported knowledge on danger signs during pregnancy and post-partum period

Different danger signs during pregnancy and post-partum period (answers deemed correct)*	Tehrathum	Khotang
<b>What are the danger signs during pregnancy? (answer deemed correct)*</b>		
Vaginal bleeding	95%	93%
Severe headache	61%	67%
Dizziness	50%	62%
Fainting	50%	50%
Swelling of limbs and face	47%	41%
Stomach cramps/abdominal pain	40%	37%
Feeling very weak	13%	27%
Convulsions	22%	16%
Decreased or absent foetal movements	2%	12%
Unusual discharge from vagina	5%	4%
Others <sup>12</sup>	18%	26%
<b>What are the post-partum danger signs? (answers deemed correct)*</b>		
Vaginal bleeding	96%	92%
Severe headache	38%	54%
Fever	46%	45%
Pain in the lower abdomen	22%	44%
Pains in the lower leg	10%	18%
Seizures	17%	7%
Foul-smelling vaginal discharge	6%	13%
Weakness and fainting	8%	7%
Dizziness	9%	6%
Fatigue	7%	7%
Blurred vision	5%	8%
Uterine prolapse	4%	5%
Others <sup>13</sup>	9%	14%
<i>Don't know</i>	2%	2%

Base: all survey respondents (n=734), \*multiple response

#### 3.4.2.4 FCHVs' knowledge on immediate and exclusive breastfeeding across districts

Overall, FCHVs from both districts have more knowledge around immediate and exclusive breastfeeding, than on other questions on breastfeeding. When FCHVs across both districts were asked about their

<sup>12</sup> Other included: fever/headache, nausea and vomiting, shortness of breath, pain just below the ribs, heart palpitations and oedema.

<sup>13</sup> Other included: chest pains, retained placenta, swelling of limbs and hands.



knowledge on when a mother should start breastfeeding after delivery, most of them responded correctly, stating immediately or within the first hour (95 per cent in Tehrathum and 96 per cent in Khotang).

FCHVs were asked to list the benefits of early breastfeeding; the same proportion in both Tehrathum and Khotang (76 per cent) said that early breastfeeding or colostrum milk can help the baby's body/immune system by preventing disease. Similarly, slightly more than half of FCHVs (56 per cent in Tehrathum and 61 per cent in Khotang) believed that colostrum is also nutritious for child health. Few FCHVs in Tehrathum (4.7 per cent) were unaware of the benefits of early breastfeeding, with the proportion was even lower in Khotang (1.1 per cent).

Table 10: FCHVs' reported knowledge on immediate and exclusive breastfeeding

Knowledge on immediate and exclusive breastfeeding	Tehrathum	Khotang
<b>When a mother should start breastfeeding after delivery? (answers deemed correct)*</b>		
Immediately/within the first hour	95%	96%
Within the first 24 hours	5%	3%
Don't know	1%	1%
<b>What are the benefits of early breastfeeding? (answers deemed correct)*</b>		
Colostrum helps the baby's body immune system learn how to fight diseases	76%	76%
Colostrum is nutritious for the child	56%	61%
The baby needs feeding immediately as it needs energy	32%	36%
Mother-baby bonding	6%	11%
Most mothers need to start breastfeeding to help the milk to come	1%	12%
Immediate breastfeeding can help many mothers recover more quickly after childbirth	6%	7%
Helps in Shrinking Uterus	2%	1%
<i>Don't know</i>	5%	1%

Base: all survey respondents (n=734), \*multiple response

#### 3.4.2.5 FCHVs' knowledge on neonatal care

FCHVs' knowledge on three neonatal care questions was high across both districts. Virtually all FCHVs know to delay bathing for at least 24 hours after birth and to only apply chlorhexidine to the umbilical stump. Most FCHVs also mentioned wiping the baby with a clean dry cloth and skin-to-skin care as important to keep the baby warm.

Table 11: FCHVs reported knowledge on different new-born care

Knowledge on different neonatal care	Tehrathum	Khotang
<b>When should a baby be bathed for the first time?</b>		
Within 24 hours	1%	1%
After 24 hours	99%	99%
<b>How should a baby be kept warm immediately after delivery? (answers deemed correct)*</b>		
Dried or wiped soon after birth with a clean, dry cloth and wrapped in a blanket	74%	88%
Skin-to-skin – put the baby on mother's chest or stomach	85%	74%
Cover mother and baby with a clean blanket	21%	13%
<b>What should be put on the cord after delivery?</b>		
Chlorhexidine (Navi Malam)	100%	100%
Mustard oil	0%	0%
Nothing	0%	0%

Base: all survey respondents (n=734), \*multiple response

#### 3.4.2.6 FCHVs' knowledge on FP

FCHVs have more knowledge around the benefits of FP than they do about the benefits of delaying pregnancy until after 20 years of age. From a health promotion and behaviour change perspective this suggests that FCHVs may be less effective at providing convincing reasons for a woman to delay pregnancy until after 20 years of age. While around 90 per cent of FCHVs mentioned the health of mother and baby as a benefit, far fewer were able to report other benefits such as completing education (32 per cent in Tehrathum and 37 per cent in Khotang) or saving money for the future (10 per cent per cent in Tehrathum and 9 per cent in Khotang).

Table 12: FCHVs' reported knowledge on FP

Benefits of having FP	Tehrathum	Khotang
<b>Benefits of planning if or when to have a baby (answers deemed correct)*</b>		
Health of the mother and baby	88%	93%
Completing education	33%	37%
Reducing household costs	26%	32%
More time for self (work, education, leisure)	17%	15%
More time for family	15%	14%
Family security	13%	13%
Saving money for the future	10%	9%
Others <sup>14</sup>	8%	9%
<i>Don't know</i>	5%	2%
<b>Benefits of delaying pregnancy until after the age of 20 years (answers deemed correct)*</b>		

<sup>14</sup> Others included: adequate care, including nutritious food for child; adequate breastfeeding; and reducing risk of uterine prolapse.

Reduce risk during pregnancy	68%	60%
Reduce risk of uterine prolapse	42%	49%
Reduce risk during delivery	39%	38%
Proper physical and mental development of mother	28%	19%
Reduce the risk of premature birth	12%	17%
Birth of a healthy child	3%	2%
Others <sup>15</sup>	1%	3%
<i>Don't know</i>	3%	2%

Base: all survey respondents (n=734), \*multiple response

### 3.4.2.7 FCHVs' knowledge on seasonal influenza

When asked about knowledge around seasonal influenza, most FCHVs successfully reported that covering their mouth when coughing or sneezing is a way to reduce the risk of passing influenza to other people (90 per cent in Tehrathum and 78 per cent in Khotang) but other methods were much less reported. Only 10 per cent and 20 per cent of FCHVs in Tehrathum and Khotang mentioned washing hands after sneezing and seven per cent and 16 per cent mentioned sitting away from infected people. This lack of reported knowledge suggests that FCHVs are not sharing simple and practical advice to communities on how to reduce the spread of influenza.

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<sup>15</sup> Others included: education and economic stability of mother and preventing malnutrition.

Table 13: FCHVs' reported knowledge on seasonal influenza

Ways to reduce the risk of passing influenza to other people (answers deemed correct)*	Tehrathum	Khotang
Cover mouth when coughing or sneezing	90%	78%
Clean used cloths for reuse	27%	23%
Wash your hands with soap and water after sneezing or coughing	10%	20%
Sitting far from infected persons	7%	16%
Use a fresh handkerchief each day	12%	10%
Practising home remedies	4%	11%
Use of masks	6%	3%
Others <sup>16</sup>	6%	11%
Don't know	3%	5%

Base: all survey respondents (n=734), \*multiple response

#### 3.4.2.8 FCHVs' knowledge on uterine prolapse across districts

Knowledge around reducing the risk of uterine prolapse is again high for one reason or method but tails off for other methods. More than 80 per cent of FCHVs across both districts mentioned not carrying heavy loads during pregnancy and post-delivery, while doing abdominal exercises and not squatting after delivery were reported by less than 10 per cent of FCHVs. This suggests that FCHVs are not sharing such advice with communities and could be an area for improvement.

Table 14: FCHVs' reported knowledge on uterine prolapse

Ways to reduce the risk of uterine prolapse (answers deemed correct)*	Tehrathum	Khotang
Not carrying heavy loads during pregnancy and post-delivery	85%	89%
Good nutrition	30%	49%
Not giving birth until the woman is physically ready	23%	27%
Birth spacing of more than 3 years	17%	22%
Having fewer children	17%	22%
FP suggestions	7%	5%
Exercises to strengthen abdominal muscles	3%	9%
Not squatting after delivery	5%	5%
Don't know	6%	4%
Others <sup>17</sup>	5%	4%

Base: all survey respondents (n=734), \*multiple response

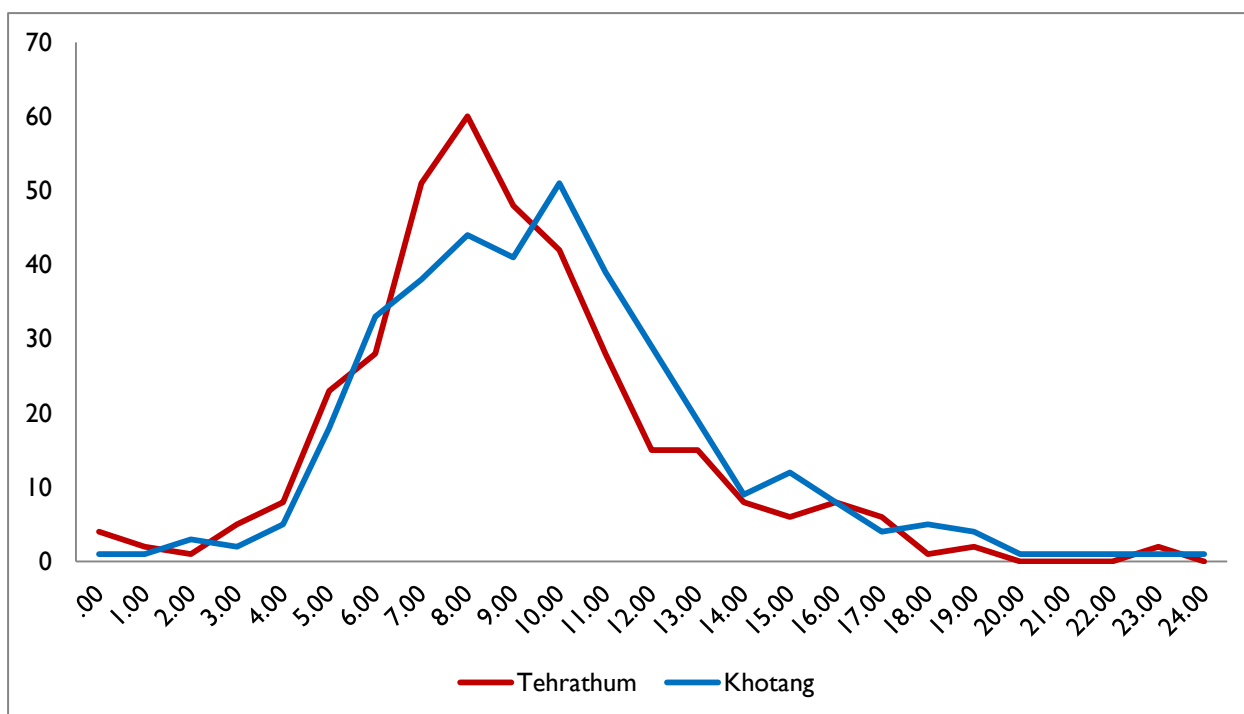
<sup>16</sup> Others included: maintaining sanitation and hygiene, seeking treatment in health facilities, avoid sharing food and utensils.

<sup>17</sup> Others included: suggesting medical measure, institutional/safe delivery and dietary suggestions.

### 3.4.3 Summary of FCHVs' knowledge of communication

The summary picture of FCHVs' knowledge around communication was conducted using the same analysis as the summary health knowledge section, where each correct response across the different questions were aggregated to give a total number of correct responses per FCHV. Across the districts, FCHVs are, on average, able to provide nine correct responses; 24 was the highest number of correct responses. The average number of correct responses among FCHVs in Tehrathum is nine, compared to ten correct responses identified across the FCHVs in Khotang. These results are significant below the traditional  $p < 0.05$  threshold. This indicates that FCHVs in Khotang are significantly more likely to be able to provide more correct responses on what constitutes effective communication with communities than those in Tehrathum.

Figure 12: Distribution of correct responses in 'knowledge of communication' by district

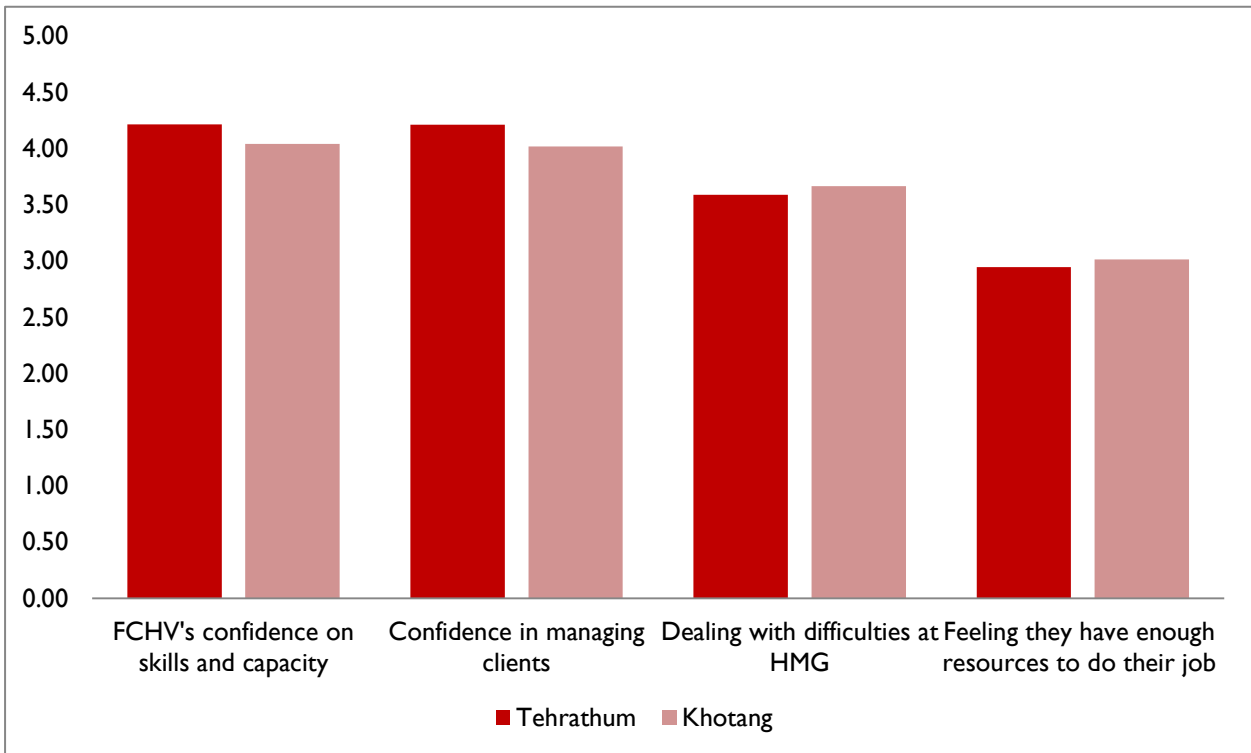


### 3.5 FCHVs' CONFIDENCE AND COMMUNICATION SKILLS

FCHVs were asked to rate their confidence, skills and resources to deliver their role with a particular focus on facilitating HMG meetings. We have created four efficacy indexes to understand their confidence related to different areas of communication.

In contrast to the current findings on knowledge, overall, FCHVs in Tehrathum reported higher levels of efficacy regarding their skills and ability to deliver their role, and confidence in managing their clients in HMG meetings.

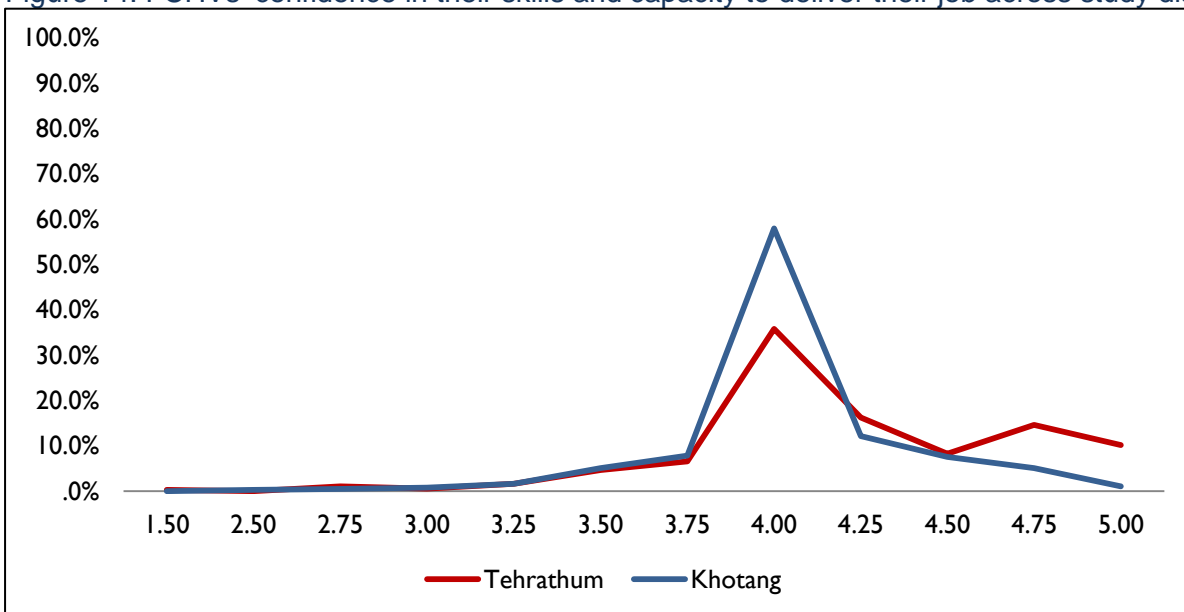
Figure 13: Average scores for four different efficacies reported by FCHVs across the study districts



FCHVs' confidence in their own skills and capacity to deliver their role is significantly higher among FCHVs in the treatment group compared to those in the control group (average efficacy score for this area was 4.21 in Tehrathum compared to 4.04 in Khotang). These regression results are significant below the traditional  $p < 0.05$  threshold.

Overall, the majority of FCHVs agreed to the statements that made up this efficacy score (see Table 2 in Appendix). However, a greater proportion of FCHVs in Tehrathum strongly agreed to the statements compared to those in Khotang.

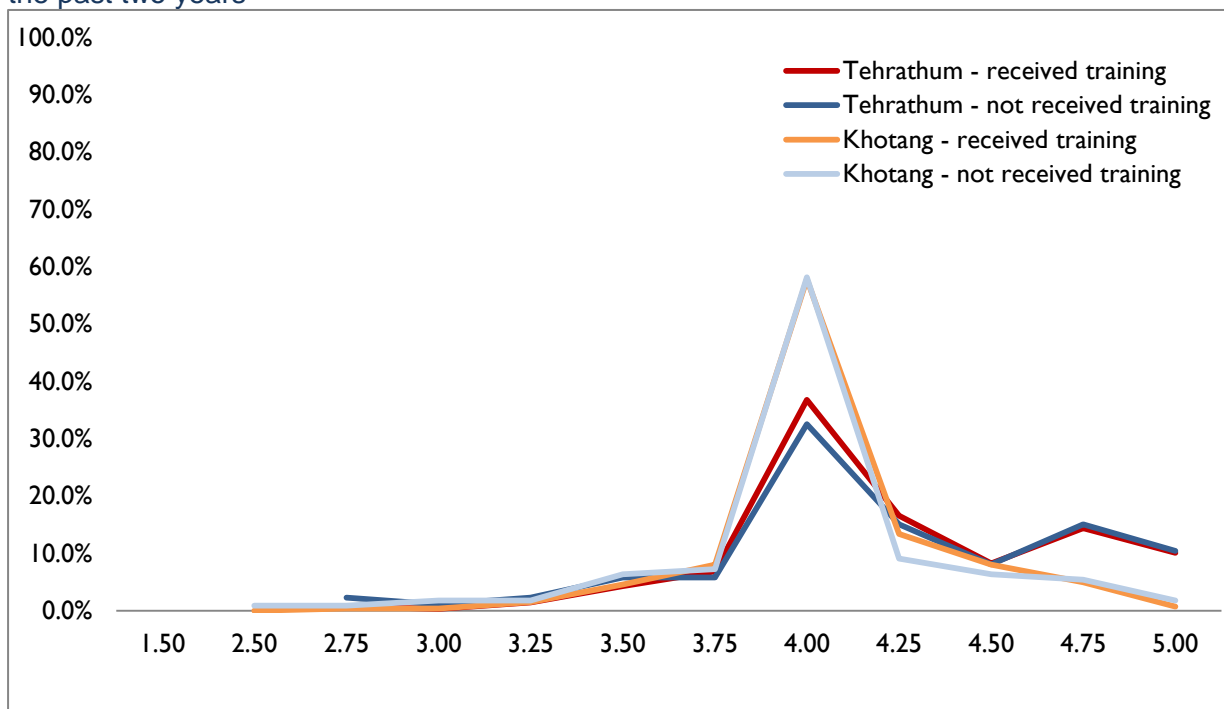
Figure 14: FCHVs' confidence in their skills and capacity to deliver their job across study districts



The higher levels of efficacy reported by FCHVs in Tehrathum in this area could have been influenced by them knowing that they will receive some training following the training, although FCHVs were not given any details of the training other than that it would be two days long. This finding might also be influenced

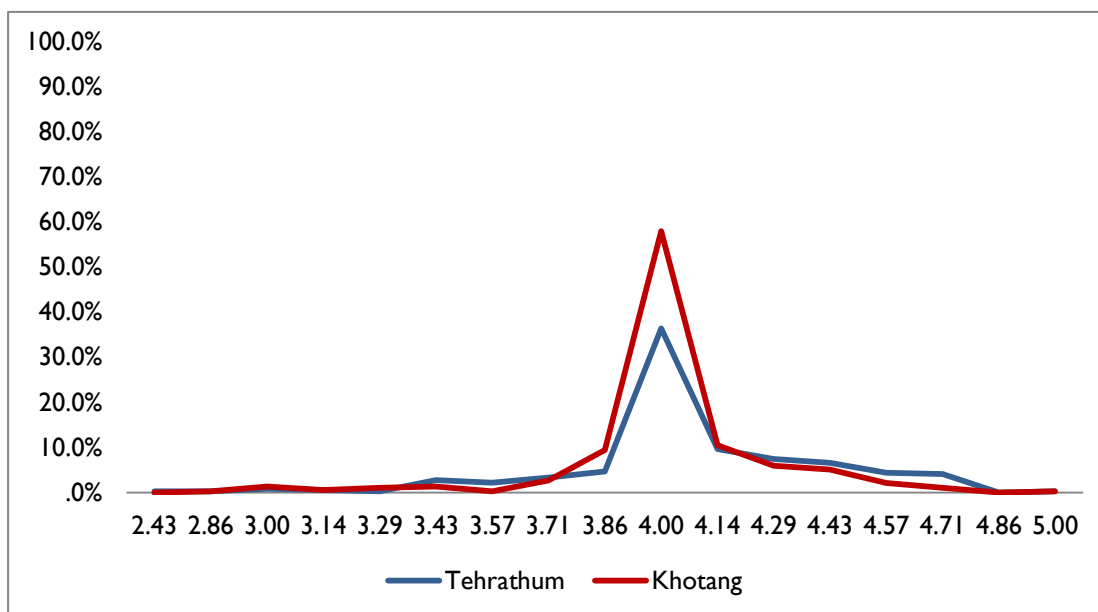
by the types and levels of training in which FCHVs have recently participated, though this requires further investigation.

Figure 15: FCHVs' confidence in their skills and capacity to deliver their roles against training received in the past two years



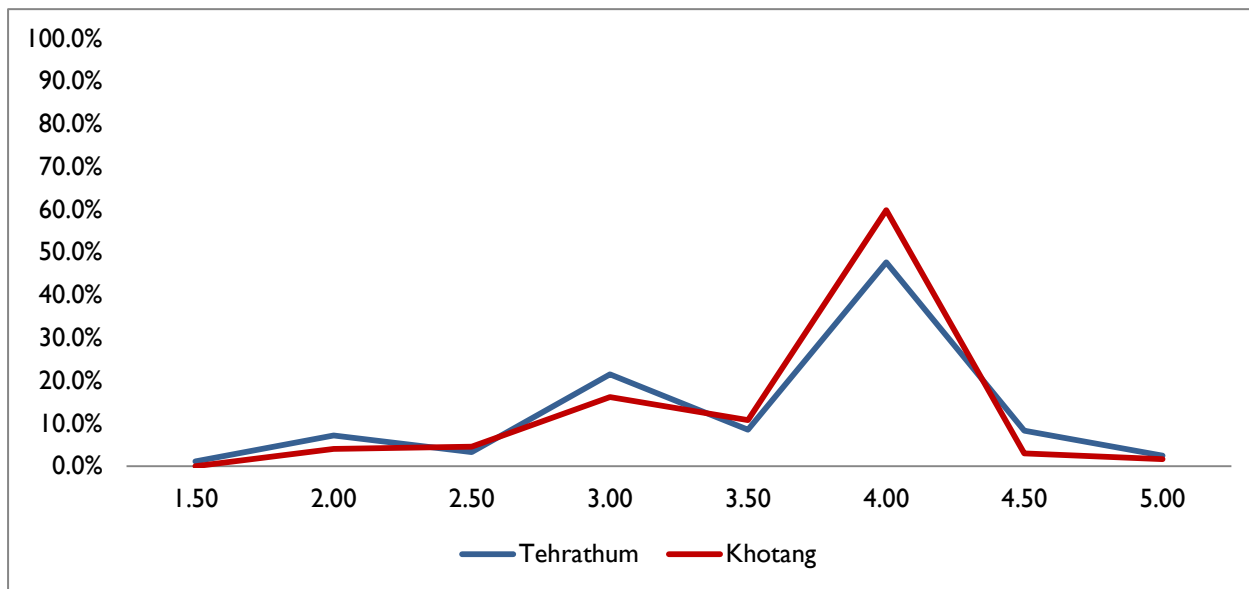
FCHVs' confidence in communicating with and managing their clients in HMG meetings was also reported as significantly higher among FCHVs in Tehrathum compared to those in Khotang (4.21 vs. 4.02 average scores). The average efficacy score for this area across the two districts was 4.11. This result is significant below the traditional  $p < 0.05$  threshold. The majority of FCHVs in both districts agreed to the statements which tested this area of efficacy (see Table 3 in Appendix) but FCHVs in Tehrathum were more likely to strongly agree with these statements compared to FCHVs in Khotang.

Figure 16: FCHVs' confidence in communicating with and managing their clients in HMG meetings across study districts



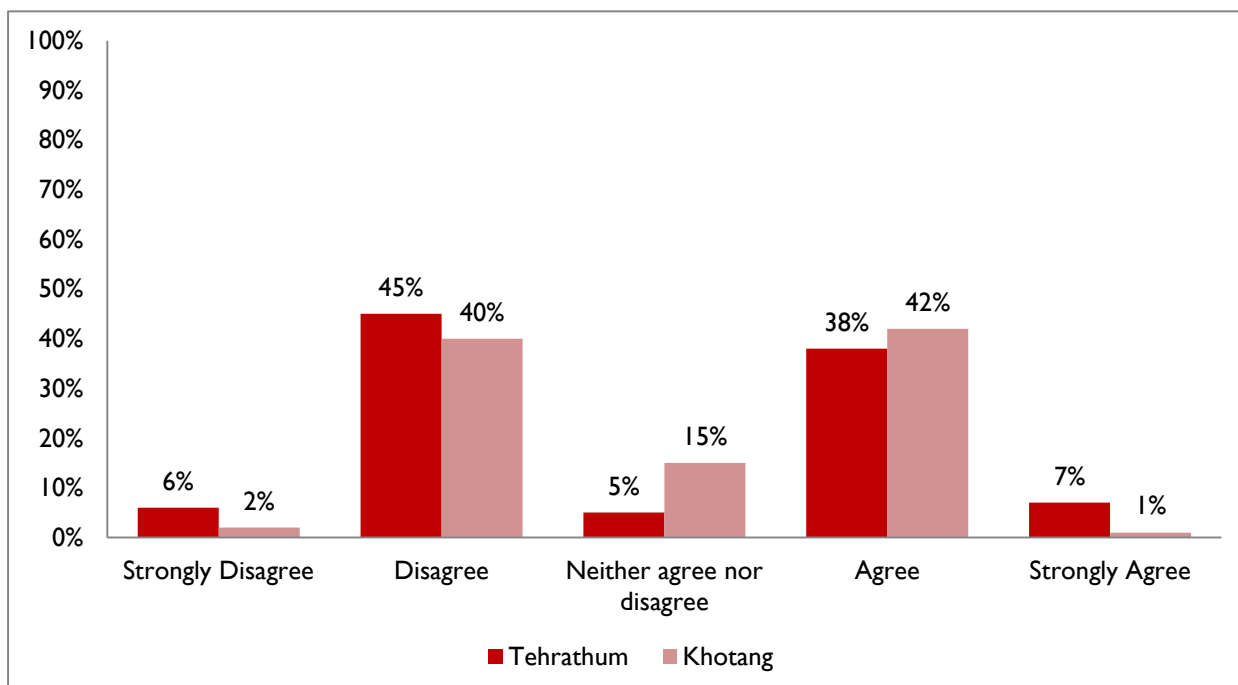
In comparison to the efficacy areas discussed above, FCHVs' efficacy for dealing with difficult questions and participants during HMG meetings was lower across the treatment and control districts with an average score of 3.63. This indicates that dealing with difficult clients in HMGs is an area in which they feel less confident. There was no significant difference between Tehrathum (3.59) and Khotang (3.67), and training in the past two years is also not significantly associated.

Figure 17: FCHVs' confidence in dealing with difficult questions and participants during HMG meetings across study districts



Although FCHVs across both districts were confident with their skills and ability to deliver their role, they expressed a fair amount of uncertainty about having enough resources to carry out their role. The average score for FCHVs' response to this statement, 'I feel that I have resources to carry out my role with confidence', is 2.98. The average responses provided in Khotang and Tehrathum are similar at 3.01 and 2.94: they are not statistically significant. However, those in either district who had received training in the last two years were more likely to agree, indicating that the receipt of training invokes a sense of confidence in FCHVs' own perceived ability and skills.

Figure 18: Proportion of FCHVs who are confident to carry out their role with current resources





## 4. CONCLUSION

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This baseline study aimed to profile FCHVs' communication skills, confidence and knowledge before the Mobile Chautari mHealth tool is rolled out. The study aimed to assess the level of similarities between FCHVs working in Khotang and Tehrathum on key demographic characteristics, levels of knowledge and efficacy.

The analysis of the baseline data, to date indicates that there are some differences in the socio-demographic profile of FCHVs between Tehrathum (the treatment district) and Khotang (the control district). For example, there is a significant difference in some key variables, which may influence the uptake and engagement with the mHealth tool. However, the DiD design recognises that without random assignment treatment and control districts are likely to differ for many reasons. Our careful selection process of the control district and the health posts within Khotang have ensured that the differences observed are not too large and we do not judge these differences to be a major issue. So long as there are a sufficient number of FCHVs participating at the endline we are confident that we can conduct a credible analysis and we do not expect high rates of attrition.

Though the intervention period is relatively short, the ToC posits that there will be a change in levels of communication skills, knowledge and efficacy in the treatment district – when compared to the control district. The baseline analysis so far has indicated that there are key areas that the project may expect to affect given the current levels of knowledge, confidence and skills.

During the evaluation period, the project team will be closely monitoring the usage of the tool and liaising with HFs to support them with any problems that they experience in order to guard against this risk of dropout. We will also track the level of engagement with the mHealth content (number of calls, length of time spent on calls) and provide this analysis to inform future decision making at the end of the pilot. Mobile Chautari is now available for use by 800 FCHVs<sup>18</sup>. The endline fieldwork will be conducted in February 2020 with early findings expected by April 2020 and the final report in May 2020.

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<sup>18</sup> The overall sample size for analysis throughout this report totals only 734 FCHVs. However, this is because this study did not sample FCHVs in the two other pilot locations of Rautahat and Darchula.

## 4 5. APPENDIX

Table 1: Significant test of different demographic variables by Tehrathum and Khotang

FCHV demographic profile		Tehrathum (n=363)	Khotang (n=371)	Pearson Chi-Square
Age	Age 20-30	18%	23%	.233
	Age 31-49	56%	51%	
	Age 50+	26%	25%	
Education*	No formal education	11%	17%	.001
	Primary education	14%	21%	
	Secondary education	44%	32%	
	Higher secondary education and above	31%	31%	
Location*	Rural municipality	68%	59%	.011
	Urban municipality	32%	41%	
Work experience*	0-9 years	42%	40%	.000
	10-19 years	22%	31%	
	20-29 years	27%	29%	
	30 years and above	9%	0%	
Training	Not received training	24%	30%	.068
	Received training	76%	70%	

Base: all respondents (n=734), \*differences are statistically significant with Pearson Chi-square value <0.05

Table 2: FCHVs' confidence in their own skills and capacity (%)

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Overall, I feel that I have enough skills, experience and abilities to carry out my role with confidence	0	3	5	73	19
My clients show that they trust my skills and abilities as an FCHV	0	1	3	68	27
The clients at the HMG always listen carefully to what I have to say	0	2	7	68	23
I feel I am able to reach all the target women (e.g. different caste, ethnicity, age) in my catchment areas	0	2	2	70	26

Table 3: FCHVs' confidence communicating with and managing clients in HMG meetings (%)

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I am confident that I can motivate clients who show low interest in attending HMG Meetings	0	2	7	69	22
I am confident in engaging with clients that are reluctant to talk to FCHVs	0	2	5	76	17
I am confident that I have enough skills, experience and capabilities in engaging with clients that are reluctant to talk to FCHVs	0	2	5	78	15
I can keep clients on topic in the HMG	0	1	5	75	19
I feel I can help clients discuss health problems and share their perspectives	0	0	3	79	18
I am confident that I can get more mothers to use health services, like receiving ANC, Postnatal Care (PNC) and delivery services	0	1	2	68	29
I am confident and able to involve marginalised women in HMGs, including adolescent girls, Dalit women, and women living in difficult-to-reach areas	0	1	3	75	21

Table 4: FCHV efficacy for dealing with difficult questions and participants during HMG meetings (%)

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor Disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
<b>FCHV knows how to answer difficult questions in HMG meetings</b>	1	20	10	66	4
<b>FCHV knows how to deal with difficult members in HMG meetings</b>	2	17	7	67	8