Impact of Audio-Visual Job Aid on Influencing Family Health Outcomes in Bihar

Findings from the Usage and Engagement study on Mobile Kunji

Abbreviations Used

- BP: Birth Preparedness
- CF: Complementary Feeding
- CPW: Currently Pregnant Woman
- FLW: Frontline Health Worker
- FP: Family Planning
- MA: Mobile Academy
- MK: Mobile Kunji
- MPR: Mathematica Policy Research
- SDP: Shaping Demands and Practices

Executive Summary

Front line worker (FLW) feedback on Mobile Kunji (MK) as a job aid was positive, **FLWs credit MK with improving beneficiary comprehension and trust, as well as their own knowledge and confidence; FLWs see MK as a colleague:**

*"Earlier I used to speak alone and **now this Mobile Kunji also speaks with me**. Now I am sure that I won't do anything wrong. It helps me to speak maturely and not say any useless thing."* **FLW, Patna**

There were greater levels of engagement reported during interactions among beneficiaries exposed to MK, compared to those not exposed: FLWs spent more time (20mins vs. 10mins); those exposed were more likely to have asked questions during the visits (21% vs. 12%); and to have discussed the information from the visit with someone else (35% vs. 22%).

Beneficiaries exposed to birth preparedness (BP) messages through MK were almost three times (2.72) more likely to have saved their FLW's phone number, compared to those not exposed. Those exposed also demonstrated better spontaneous recall of key birth preparedness steps.

Beneficiaries exposed to complementary feeding (CF) messages through MK were almost twice (1.72) as likely to have fed their 6-11 month old with at least one infant and young child feeding (IYCF) food in the previous 24 hours. Those exposed also reported higher awareness of the correct month to initiate CF (49% vs. 62%).

While those exposed to family planning (FP) messages through MK did report higher awareness of the correct gap to leave for birth spacing (68% vs. 59%) and slightly better knowledge of spacing methods (71% vs. 67%, could name at least two) **there was nothing to indicate that this translated to improved levels of practice**.

Summary: Impact of MK on FLWs

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Increased Confidence

- FLWs report that they are more confident in their work when they carry MK.

Increased Skill

- Beneficiaries exposed to MK were significantly more satisfied with the FLW response to their queries than those not exposed.
- Perceived accuracy of the information provided by the FLW was significantly higher amongst beneficiaries exposed to MK and they were less likely to doubt the answers provided by the FLW.
- FLWs report that MK improves their knowledge and ensures they share detailed information correctly.

Increased Trust

- Perceived credibility of the information provided by the FLW on priority behaviours was significantly higher in the exposed group; FLWs say that beneficiaries accept information they provide much quicker when they use MK.
- There was a significantly higher level of trust among the exposed group on the information provided by the FLW as compared to traditional sources (like Dai, MIL).

Increased Credibility

- A significantly higher proportion of beneficiaries in the exposed groups asked questions during the FLW interaction.
- The average duration of interactions among the beneficiaries in the exposed group was two times the duration in the non-exposed group.
- Information provided during FLW visit was discussed by a significantly higher percentage in the exposed group.

Improved Engagement

Summary: Exposure to MK and key determinants of BC

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Comparing those exposed and those not exposed to messaging through MK:

↑ Sig. higher among those exposed
↔ No difference exposed vs. not exposed

Higher Knowledge Levels

- ↑ BP - Of any 3 things to be planned in advance
- ↑ CF - Initiation of CF after 6 months
- ↑ CF - Food diversity to be given as CF
- ↑ FP - Ideal gap between 2 children
- ↑ FP - Any 2 spacing methods

More Positive Attitudes

- ↑ BP - Attitudes related planning for delivery in advance
- ↑ CF - Child will be able to digest mashed food
- ↑ FP - 3 years gap makes a lot of financial sense

Higher Levels of Self-efficacy

- ↑ CF - Efficacy to feed the child 3 times a day
- ↑ CF - Efficacy to feed the child in a separate bowl
- ↑ FP - Efficacy to be able to convince husband of a 3 year gap between 2 children

Practice

- ↑ BP - Registered for pregnancy with FLW
- ↑ BP - Saved FLWs phone number at home
- ↑ CF - Fed only breast milk up to 6 months
- ↑ CF - Fed at least 1 IYCF-proscribed food group in last 24 hours
- ↔ FP – Using family planning method

*BP: Birth preparedness, CF: Complementary feeding, FP: Family planning

Project Overview

- Shaping Demands and Practices (SDP), BBC Media Action's project in India, is part of Ananya.

- Ananya is a collaboration between BMGF, Government of Bihar and nine grantees, aimed at improving family health outcomes.

- Under SDP, BBC Media Action is tasked with changing behaviour associated with family health using a 360° approach to Behaviour Change Communication.

- SDP is designed to impact the crucial 33 months starting from the first trimester of pregnancy – raising demand for service and increasing priority behaviours.

Project Background: How to reach the target audience?

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Beneficiaries - challenge:

88% rural | **70%** illiterate | **18%** watch TV | **11%** listen to radio

Clearly, using traditional media to provide access to information wasn't going to work on its own…

Opportunity:

82% of beneficiaries have mobile access | **200K + FLWs doing outreach** | **85% FLWs have own phone**

…and you have the ingredients for a solution

Source: SDP baseline study (2011)

Project Background: Mobile Kunji

Mobile Kunji was developed as one element of the 360 degree approach of the SDP project, designed for use as a job aid by FLWs during their IPC sessions with rural families.

Mobile Kunji has two components:

- A deck of 40 colour-coded **cards** with illustrations and key messages for each stage of the 33 months.
- Each card carries a unique seven-digit mobile short code which FLW dials to play **audio**.
- Audio message is delivered by Dr Anita.

Project Background: Theory of Change

FLW

Beneficiary

Mobile Kunji

Increased Confidence

Increased Skill

Increased Trust

Increased Credibility

Increased Level of Engagement

Increased Knowledge

More Positive Attitudes

Increased Discussion

Increased Self-efficacy

Practice

Usage and Engagement Study: Research Questions

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Beneficiaries:

- What are the different **usage case scenarios** of Mobile Kunji?
- What level of engagement do audiences have with FLWs, and in what ways does the use of Mobile Kunji contribute to the **quality of** that **engagement**?
- What is the **impact** of Mobile Kunji **on knowledge, attitudes**, inter-spousal communications and self-efficacy around uptake of specific priority behaviour(s)?
- Does the use of Mobile Kunji have an impact on the **perception of trust and credibility of FLWs** among their clientele?

Front Line Workers (FLWs):

- Does using Mobile Kunji make **FLWs feel motivated and confident** about their ability to convince clients to adopt priority behaviours?
- Do FLWs who use Mobile Kunji feel that it **contributes towards their client engagement** capabilities?

This report focuses only on Mobile Kunji, as per the above research questions. The findings in this report need to be understood within the context of the SDP project overall and the Ananya intervention, as well as the wider RMNCH Bihar context.

Usage and Engagement Study: Overall Design

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Quantitative Survey:

- 3,000+ respondent beneficiary survey of two key target groups: currently pregnant women (CPWs) and mothers with an infant 6-11 months old (Ms6-11).
  - Included both those exposed and not exposed to Mobil Kunji.
  - Sample drawn from eight innovation districts, within the catchment of 585 FLWs.
  - The sample was designed to be powered to assess the impact of MK on three key themes (**BP, CF and FP**).
- 585 FLWs also surveyed.

Qualitative Discussions

- In-depth interviews (IDIs) and focus group discussions (FGDs) with low and high usage FLWs across four districts.
  - Four FGDs and 28 IDIs completed.
- 16 mini-group discussions (MGDs) with currently pregnant women (CPWs) & mothers with an infant 6-11 months old (Ms6-11).*
- 8 mini-group discussions (MGDs) with mothers-in-law of CPWs and Ms6-11.*

Research was conducted through independent agency:
Social and Rural Research Institute (SRI) – a unit of IMRB International.

*Note: The data from the mini group discussions with primary and secondary target audiences is not heavily referenced throughout this final report

Usage and Engagement Study: Quant Sample

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Step 1. FLW database stratified by usage level

- Stratification was done at district level into three equal groups – high, medium, low usage of MK.
- Levels were based on the minutes of usage from call logs.
- An equal number of respondents were sampled in each strata.

Step 2. Themes and Target Groups

- The three themes with highest usage were selected: Birth Preparedness (BP), Complementary Feeding (CF) and Family Planning (FP).
- Based on this, two target groups of respondents were identified: currently pregnant women (CPWs) and mothers with an infant 6-11 months (Ms6-11).

Step 3. Respondent Selection

- In the catchment area of the sampled FLW, a screening exercise was conducted to identify eligible respondents.
- In each catchment area, about 6-7 respondents were selected based on the recruitment criteria for the main interviews.

	Target	Achieved	Weighted
Beneficiaries: Exposed	2,700 (1350 CPWs, 1350 Ms6-11)	2,423	2,524
Beneficiaries: Not exposed	900 (450 CPWs, 450 Ms6-11)	956	827
Beneficiaries: Total	3,600	3,379*	3,351
FLWs	585	583	n/a no weighting

The purpose of this study was to explore the differences in the levels of engagement, knowledge, attitudes and behaviours among members of key target groups, who have been exposed to the intervention, compared to those not exposed, in the eight priority districts. The results should be interpreted within that context.

* 28 respondents were CPWs as-well-as mothers of an infant 6-11 months and hence, counted twice

The sampling approach addressed both the Usage and Impact components of the study:

- FLWs were stratified into three tertiles based on of their IVR usage in each study district.
- From within each tertile, an equal number of FLWs was selected using simple random sampling.

The major objectives of stratifying the sampling frame based on Minutes of Usage were:

- This enabled a more representative view of the varying levels of MK IVR usage among the FLWs in the Ananya districts, for the Usage component of the study.
- The approach allowed us to achieve the number of exposed and unexposed beneficiaries required for the sample to be powered, whilst maintaining the representativeness of exposed and unexposed samples, for the Impact component of the study.
- Stratification was based on the assumption that more of the exposed beneficiaries are likely to be present in the high IVR usage stratum than the low usage one.

Post-stratification, we applied probability weights to the data, in order to ensure that the beneficiary sample is representative of the listing data. The weights, therefore, corrected for the probability of exposure to MK at the beneficiary level.

Usage and Engagement Study: Beneficiary sample detail

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Total (weighed) sample = **3,351**

Engagement Sample

Q. Whether exposed to either component (for any theme)

- No = **never exposed** to MK = 827
- Yes = **ever exposed** to MK = 2,524

And recall which theme(s) were discussed (unprompted)

- Recall any of top three themes = 2,333
- Recall remaining six themes, but not top three = 191

Usage Sample

Q. Whether exposed to either component at least once in the last two visits in the last two months (for any theme)

Yes = **recently exposed** to MK) = 2,214*

Impact Sample**

Q. Whether recall discussing theme with FLW (prompted)

Ever exposed to BP messages through MK = 825	Never exposed to BP messages through MK = 939	1,764 CPWs
Ever exposed to CF messages through MK = 873	Never exposed to CF messages through MK = 760	1,633 Ms6-11
Ever exposed to FP messages through MK = 1,213	Never exposed to FP messages through MK = 2,138	3,351 CPWs and Ms6-11

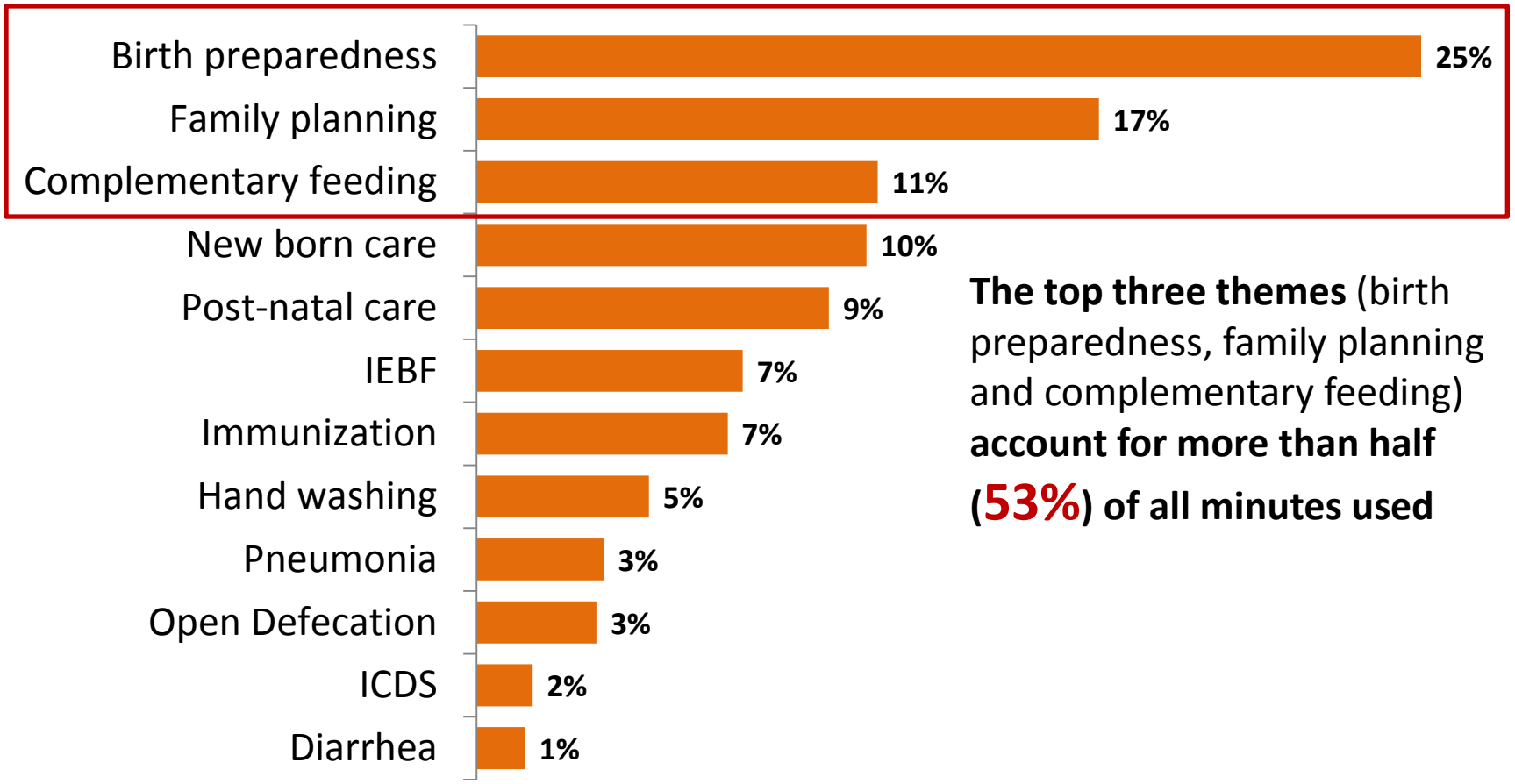
*** 309 respondents of the ever exposed sample were excluded from the usage sample because they were not recently exposed**

****The never exposed Impact samples for the three themes include those never exposed to MK as well as those exposed to MK but not to the thematic messages in question**

Usage and Engagement Study: Focal Themes

Mobile Kunji Proportion of Total Minutes Used by Theme

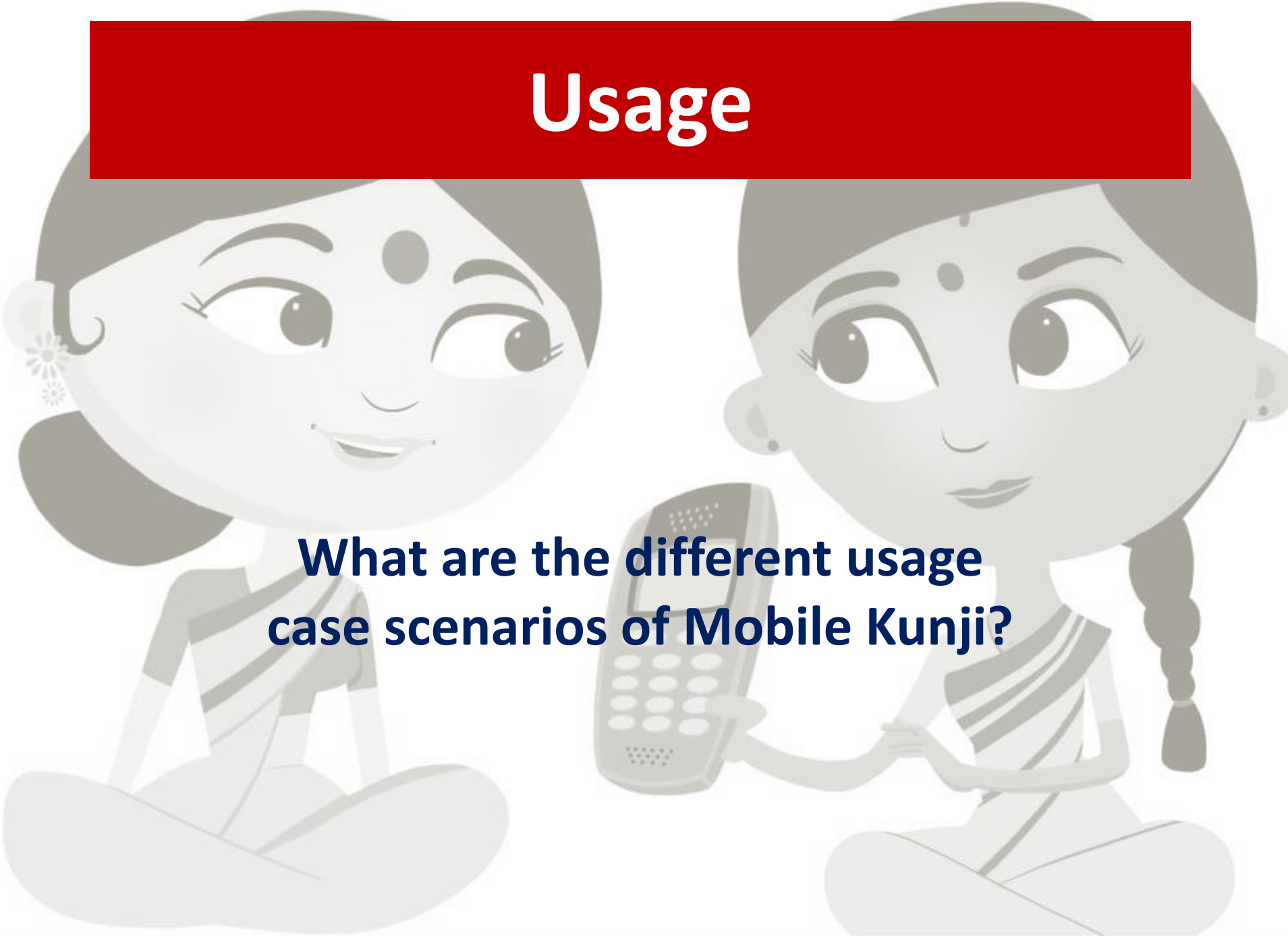
Oct-Dec-14



The top three themes (birth preparedness, family planning and complementary feeding) **account for more than half (53%) of all minutes used**

Source: MIS (mobile information system) data

Usage



What are the different usage case scenarios of Mobile Kunji?

Usage: Highlights

FLWs describe starting interactions with beneficiaries verbally, then introducing the MK cards and then the audio. In most interactions they use both components.

Findings suggest that the **FLW's decision on how/ if they use MK often depends on how challenging the beneficiary may be to convince of information** (this depends on beneficiary education, her attention level, how many children she has had, her stage of pregnancy as well as the FLW's own confidence and experience).

The **top two reasons for rare usage of MK were to do with mobile phone access** (connectivity and non availability of the mobile phone).

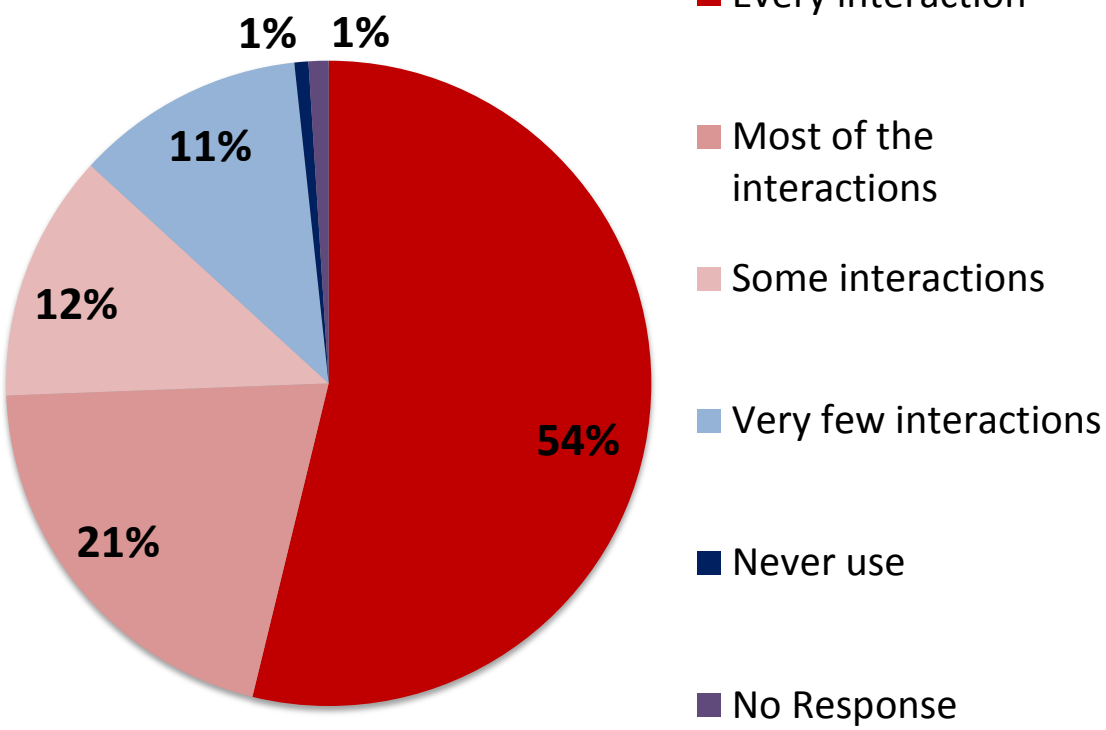
FLW and beneficiary recall of themes reflects the minutes used data and the stage specific messaging that MK was designed around. Feedback suggest **FLWs are generally very happy with themes and information provided in MK**.

Usage: Exposure to Mobile Kunji

Reported use of MK by both beneficiaries and FLWs in the study was high.

- Three-quarters (75%) of FLWs reported frequent use of MK (in most or all interactions).

Usage: FLW reported



The Ananya midline by MPR estimates that MK penetration (either component), at least once in last 6 months, was **39%**

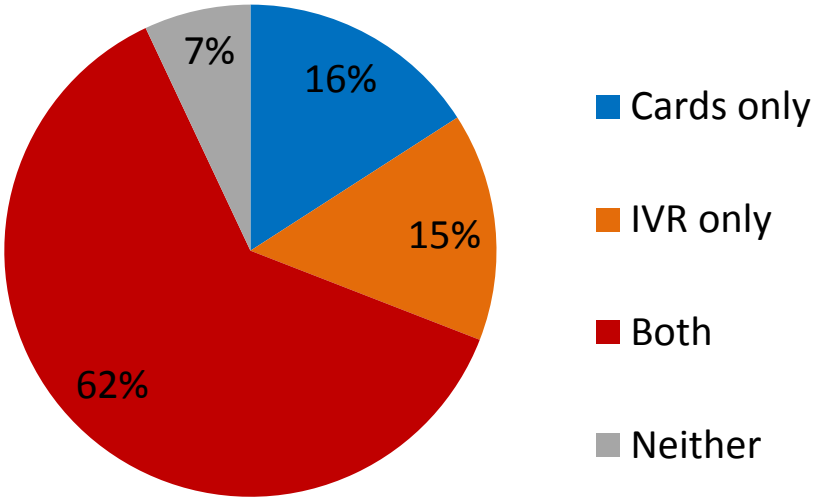
NOTE: The figures provided under U&E are not reach figures. They have been captured only among those recently exposed to MK. Hence, these figures should not be compared with reach figures of Ananya Mid-line by MPR.

Base - Beneficiaries: All recently exposed = 2,214
Base - FLWs: All = 574

Usage: Cards vs. IVR

In most interactions, FLWs use both MK components with beneficiaries.
- FLWs report that MK is flexible enough, however, to adapt to different interactions; the cards work well at initially engaging beneficiaries while the IVR provides authority and re-enforces trust.

Component used in last FLW visited
(reported by beneficiaries)



- Qualitative feedback on MK from FLWs suggests that they generally start the conversation themselves, before introducing the MK cards, and then the audio.
- Findings indicate that generally FLWs believe they use the cards more often, but that the audio has more power to convince people (due to beneficiaries' response to the voice of Dr Anita).
- They see a purpose for both components; when asked how they would feel if each were removed, they would miss both.

"At times single thing works, at times both things are required but both things should be there for us. Both things are needed for making our work easy." **FLW, Patna**

"I will show the cards first, explain the cards and then play the audio and after me explaining the concept and Dr Anita saying the same things then they trust us and she understands the concept." **FLW, Khagaria**

Base: All recently exposed = 2,214

Usage: Influences on usage

Findings from the study suggest FLWs decision on how/ if they use MK often depends on how challenging the beneficiary may be to convince.

- In the quantitative survey, MK exposure among beneficiaries was greater among those with one or more children already, and when the FLW had less than 8 years experience.
- The qualitative discussions with FLWs indicate that the education and literacy of the beneficiary are key influences on whether or not MK is used.

Factors Influencing MK Usage:

"Those who are educated women they understand with card. Those who are uneducated don't understand much. She pays attention towards mobile more." FLW, Patna

"You need free time for making them listen to Kunji. You can't understand it if you are in a rush." FLW, Patna

Other factors: Context/ practical

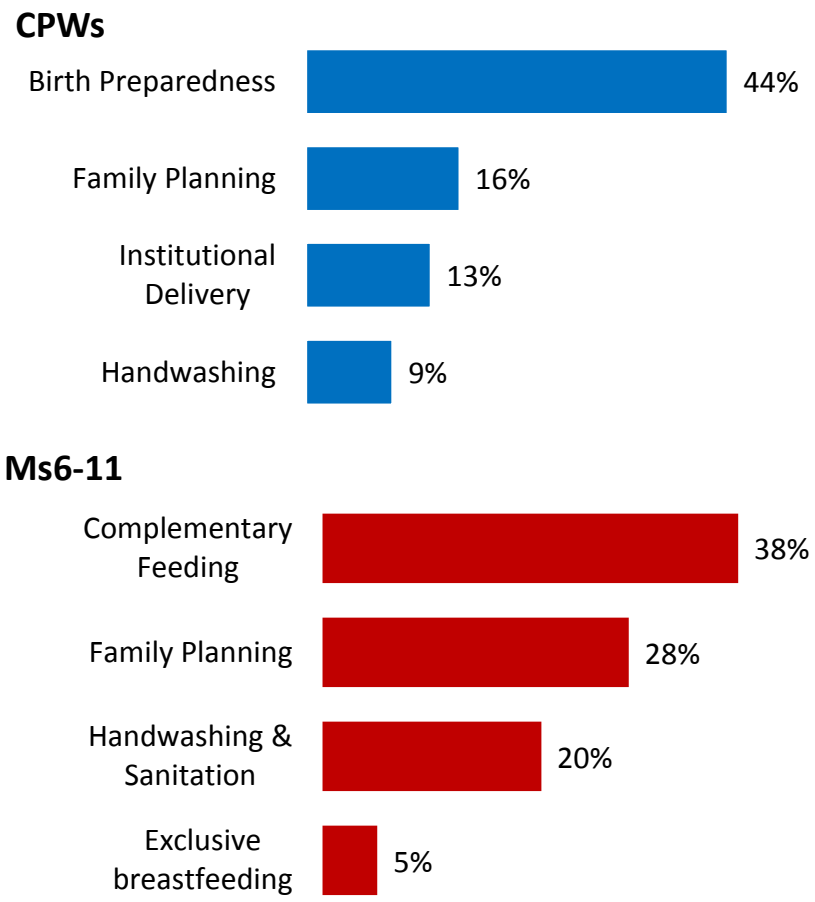
Beneficiary mood (whether she has time)

How many minutes the FLW has remaining

Usage: Most used themes

Beneficiary and FLW feedback on the most used MK themes tallies with the minutes of usage data and reflects the needs of the beneficiary related to her stage of pregnancy.

MK Exposed Beneficiary Recall of Themes Discussed



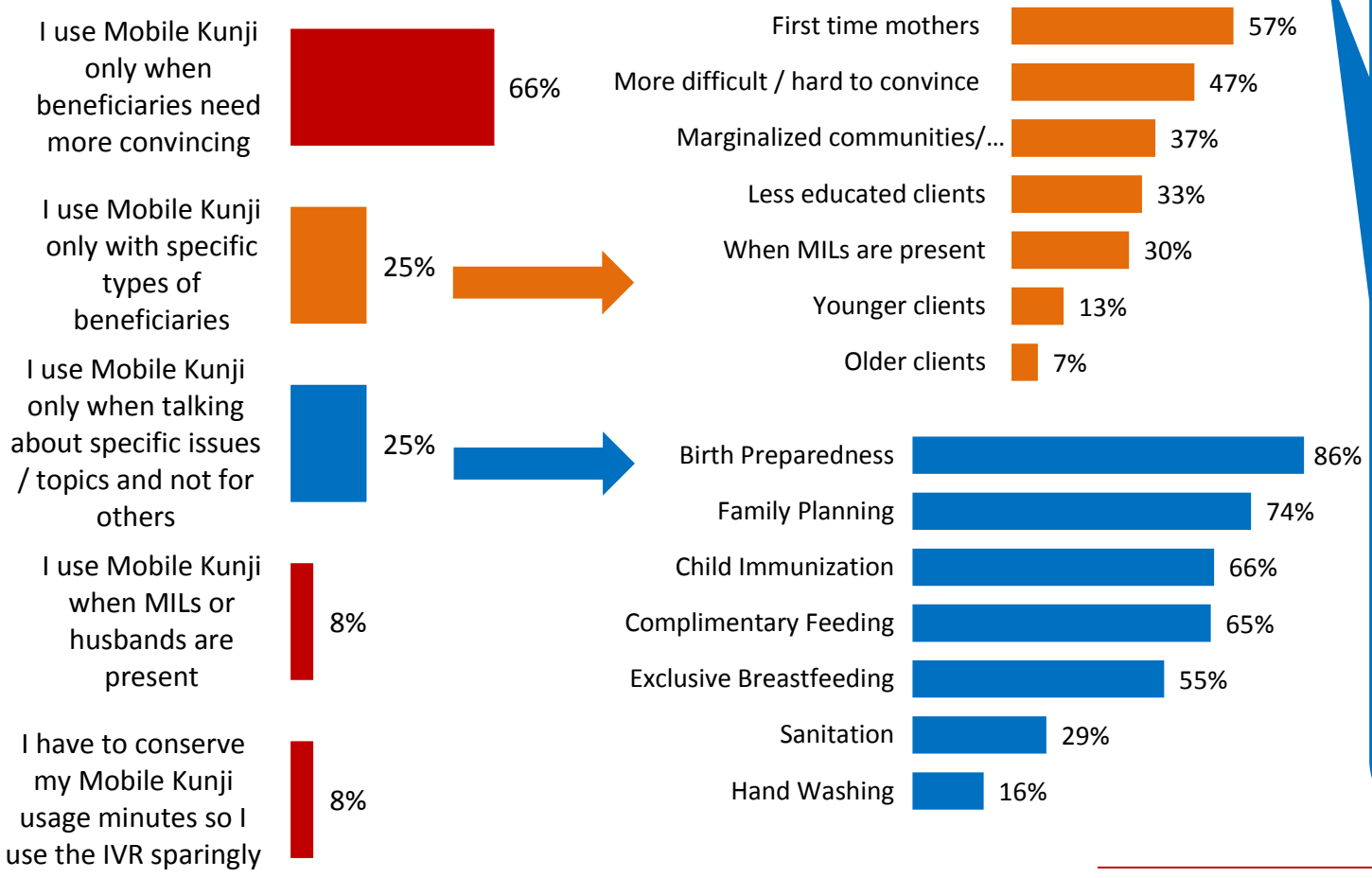
- FLWs were generally very happy with the content and range of themes covered by MK.
- The only topic felt to be missing by multiple FLWs was information for younger women/ girls (menstruation, hygiene, marriage).
- Feedback on the different topics and themes also demonstrated how challenging the issue of family planning is for the FLW to discuss.
  - As you would expect, this topic appears to be one greatly affected by social norms, myths and other household influences (particularly husbands).
  - While overall the FLWs were happy with this card/ audio, some mentioned the desire for additional information to be included.
  - At the same time, some FLWs indicated that they rarely use this card as conversations on this issue are better tackled verbally.

Base: All CPWs who have been recently exposed to DoC/IVR/Both (Cases –2890)
Base: All Mothers 6-11 months who have been recently exposed to DoC/IVR/Both (Cases–2678)

Usage: Reasons for not always using MK

Among those who are not always using MK, usage often depends on whether they feel they will need MK to convince to the beneficiary.

Main reason for not using MK in all interactions



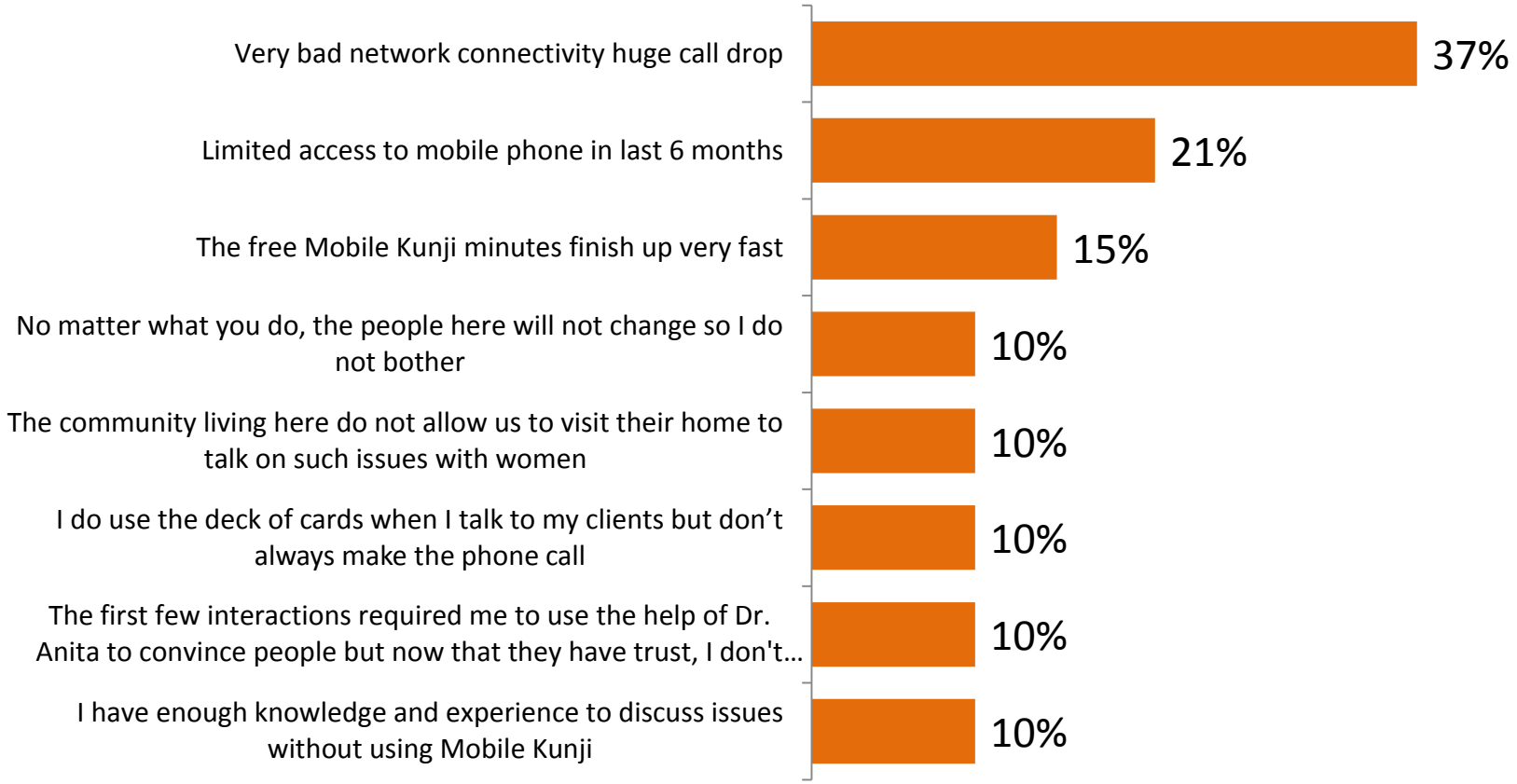
"One woman is there in our … they would not get vaccination of their son done. I used to go to their house. People from district used to go to their house. I used to take ANM with me but still they would not to come for vaccination... We made her listen to the Kunji. Since she has heard the recording of Dr Anita, she has started taking vaccination for both of her kids."
FLW, Khagaria

Base: FLWs who reported using MK some/most of the time, 189; those using MK only with certain beneficiaries, 60; those only using MK for certain topics, 147

Usage: Reasons for rarely using MK

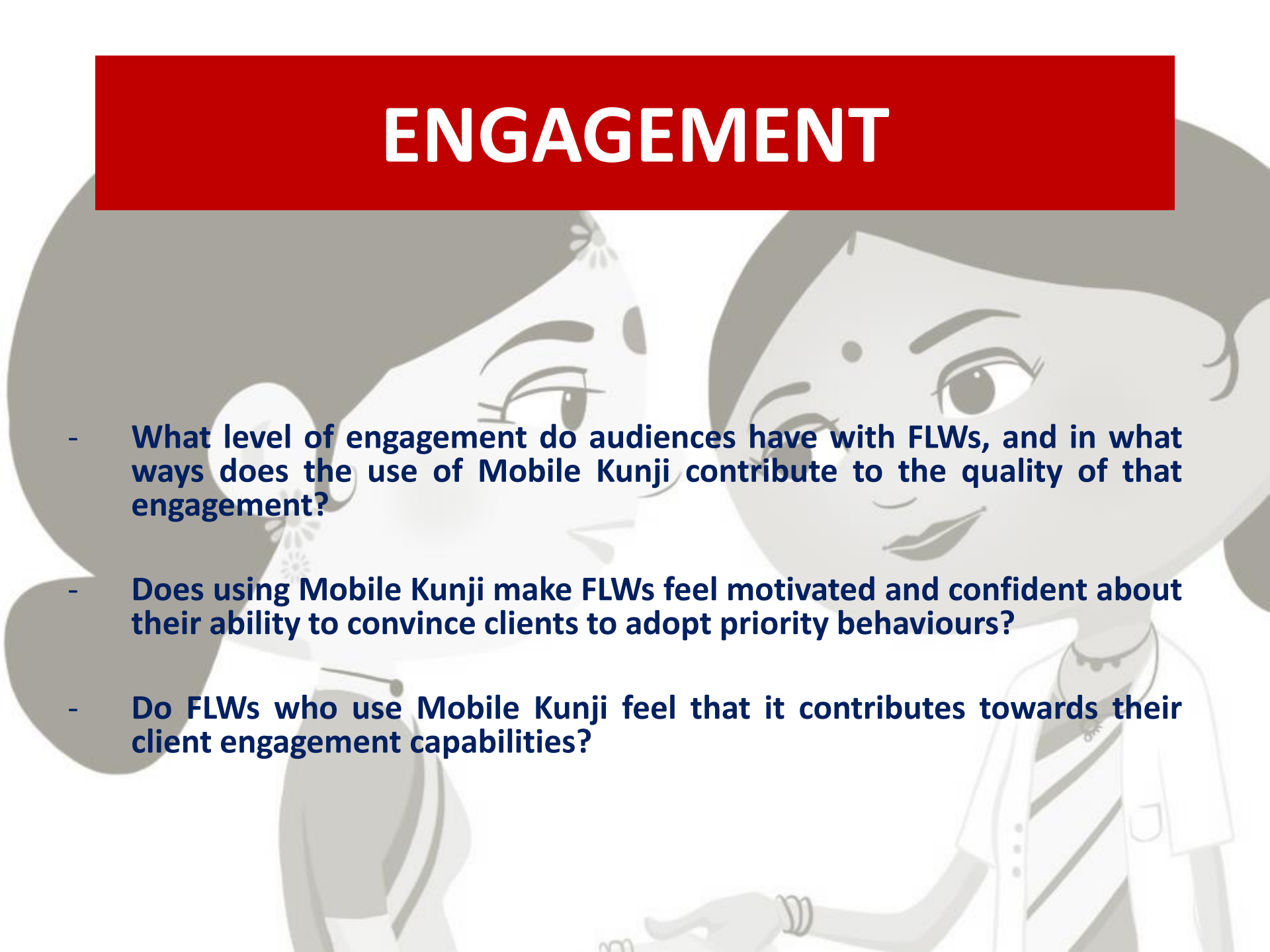
Among those who are rarely using MK, the reasons are largely practical and contextual.

Main reason for rarely using MK



Base: FLWs who reported rarely using MK, 68

ENGAGEMENT



- What level of engagement do audiences have with FLWs, and in what ways does the use of Mobile Kunji contribute to the quality of that engagement?
- Does using Mobile Kunji make FLWs feel motivated and confident about their ability to convince clients to adopt priority behaviours?
- Do FLWs who use Mobile Kunji feel that it contributes towards their client engagement capabilities?

Engagement: Highlights

There were **greater levels of engagement reported during interactions among beneficiaries exposed to MK**, compared to those not exposed; visits were longer (20mins vs. 10mins), those exposed were more likely to have asked questions during the visits (21% vs. 12%) and to have discussed the information from the visit with someone else (35% vs. 22%).

Agreement among beneficiaries exposed to MK that their FLW is a credible source of information was very high, and significantly higher than that reported by those unexposed, for all of the top themes.

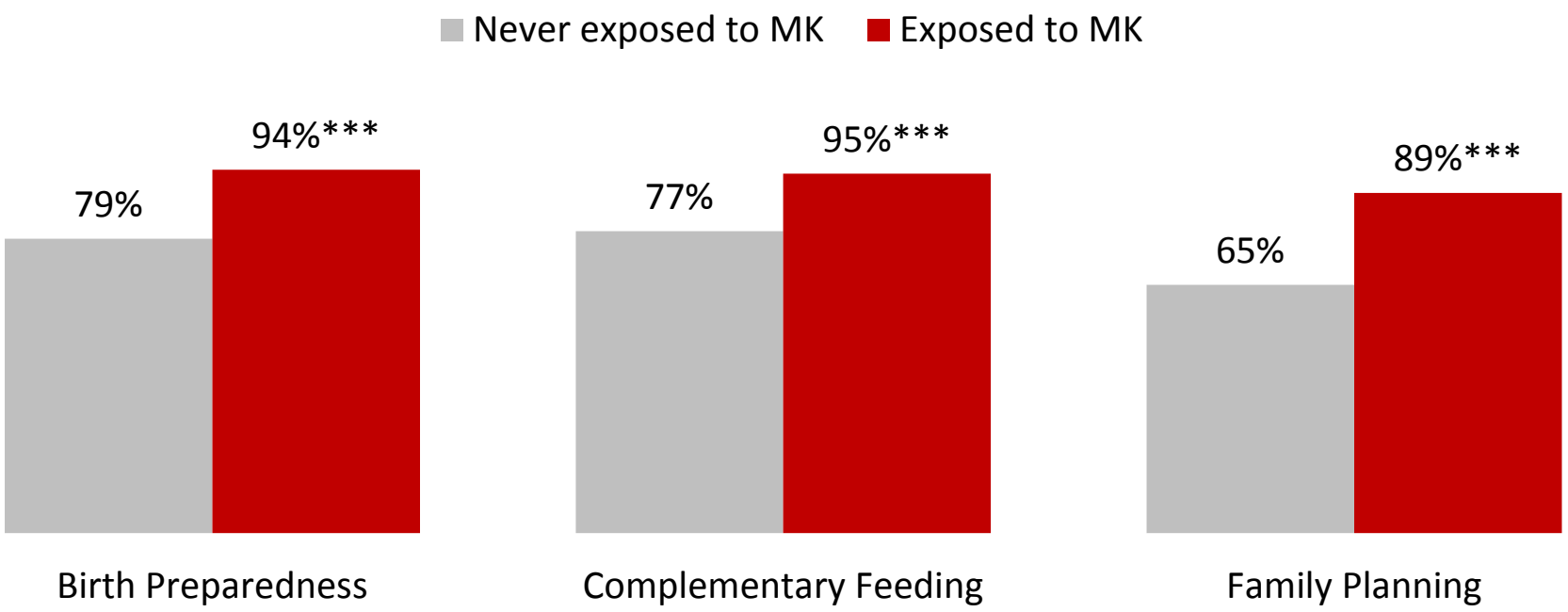
Both beneficiaries and FLWs agree that **MK adds to beneficiary trust in the FLW** as a credible source of engagement. Dr Anita is key to beneficiary trust: **nine out of ten (90%) beneficiaries agree that Dr Anita makes them trust the information from the FLW more**.

FLW feedback shows how **MK is like a colleague providing ongoing support** to them in their work and improving their confidence and ability to engage beneficiaries.

Engagement: Trust in FLW as a source of info

Agreement among beneficiaries exposed to MK that their FLW is a credible source of information was very high, and significantly higher than that reported by those unexposed, for all of the top themes.
- The difference in levels of agreement between exposed and unexposed was greatest for information related to family planning (24%); the study suggests family planning is one of the more (if not the most) challenging topics for FLW workers to address with beneficiaries.

Agree/ strongly agree that FLW is a credible source of information related to:



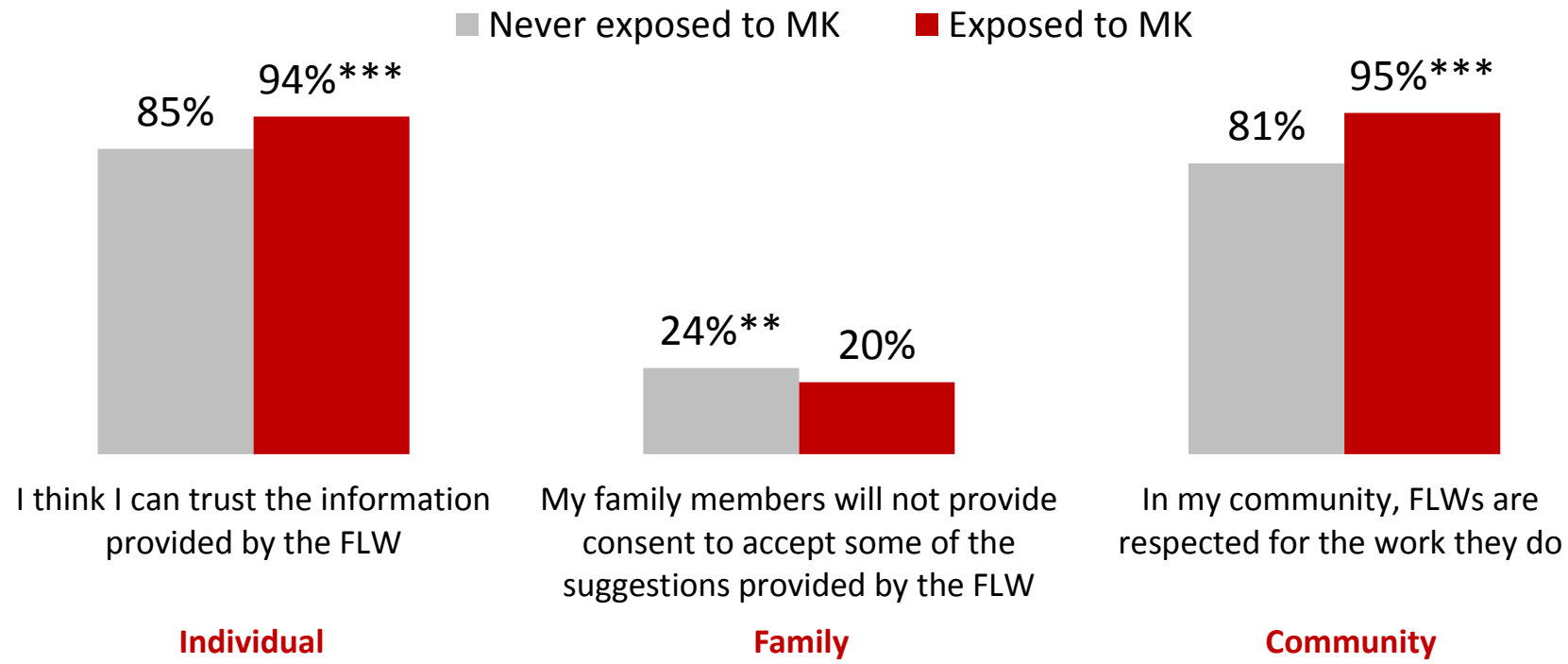
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All respondents (exposed =2,524, never exposed = 827)

Engagement: Trust in the FLW

Trust in FLWs was generally high across the sample, however there were encouraging differences by exposure to MK in agreement with three key areas/levels of trust in FLWs: the beneficiary's own trust, acceptance of the FLW's advice among family members and whether the beneficiary thinks the FLW is respected by the wider community.

Agree/ strongly agree with statements:



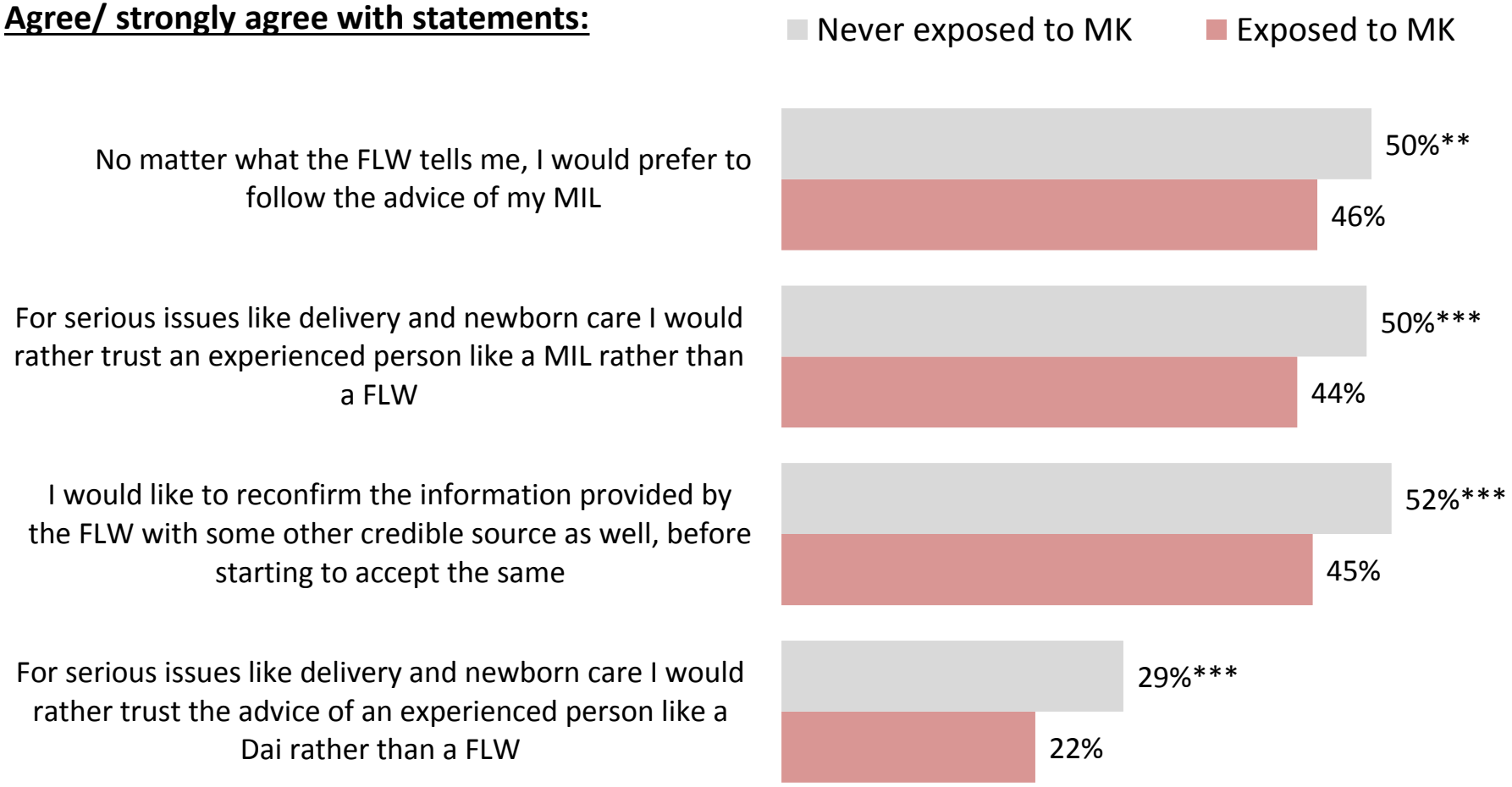
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All respondents (exposed =2,524, never exposed = 827)

Engagement: Preference for traditional sources

Those not exposed to MK reported higher agreement with statements demonstrating a preference for traditional sources, especially mother-in-laws.

Agree/ strongly agree with statements:



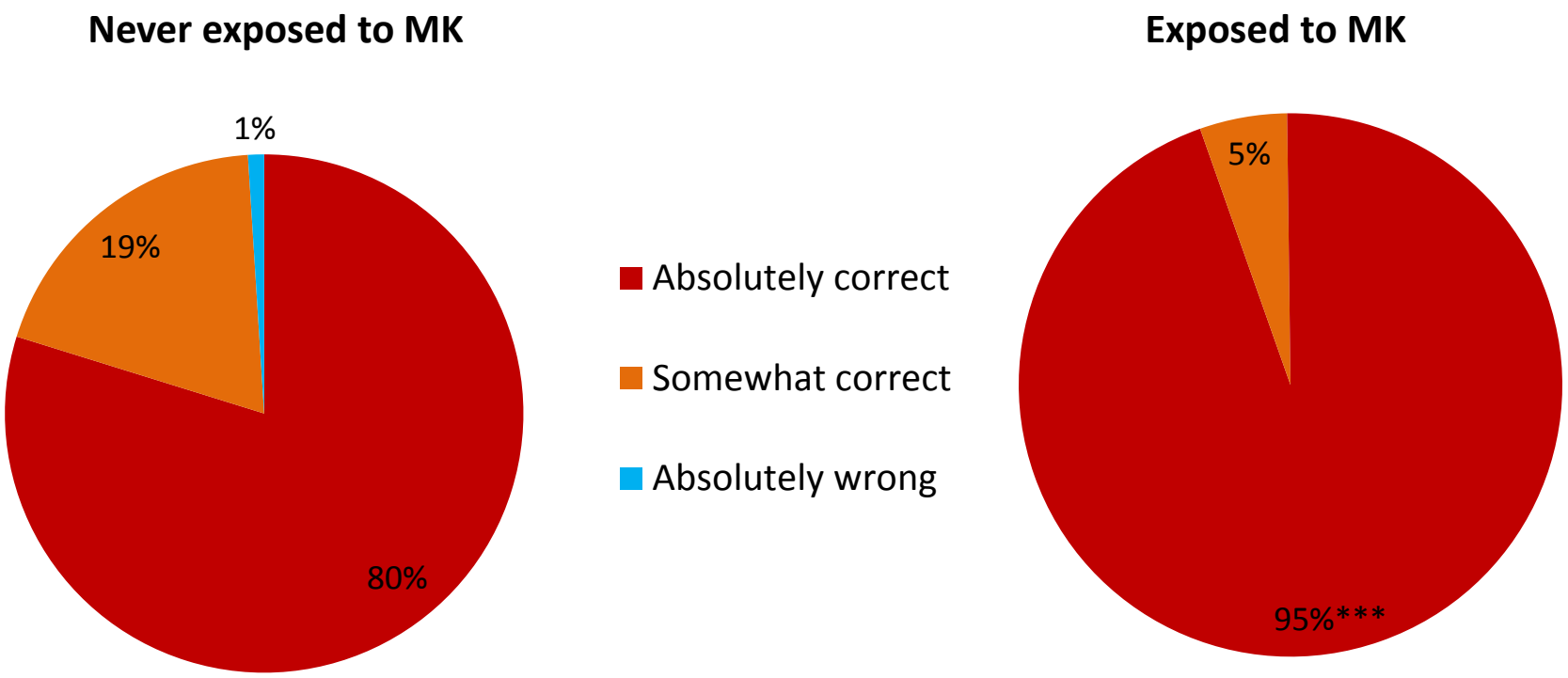
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All respondents (exposed =2,524, never exposed = 827)

Engagement: Perceived accuracy

Almost all (95%) beneficiaries exposed to MK think that the information provided by their FLW is absolutely factually correct, significantly higher than among non-exposed (80%).

Whether beneficiary thinks that the information received from the FLW is factually correct



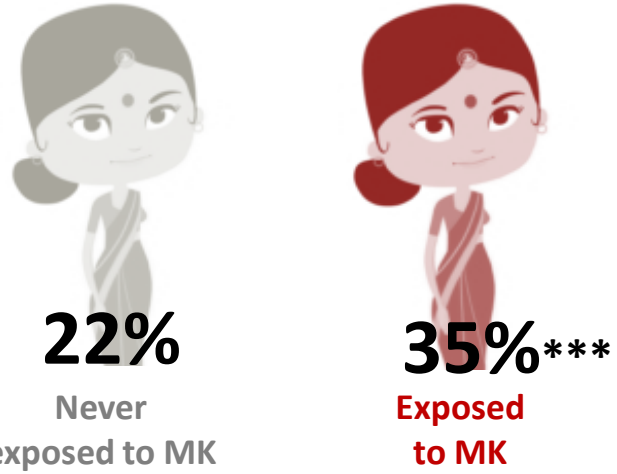
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All respondents (exposed =2,524, never exposed = 827)

Engagement: Follow-up conversations

Those exposed to MK were more likely to have discussed their FLW's visit with others. Findings suggest that MK is successfully contributing to the overall SDP objective to promote interpersonal communication.

Had discussed the day's communication with anyone after the FLW visit:



22%
Never exposed to MK

35%***
Exposed to MK

Who they discussed the visit with:	Never exposed to MK	Exposed to MK
Husband	42%	44%
MiL	32%	28%
Husband or MiL	57%	58%

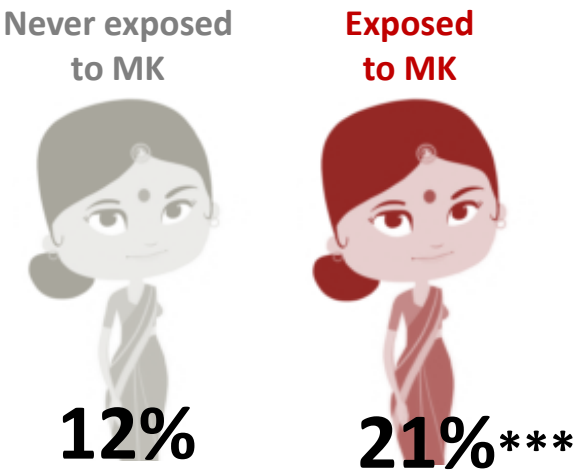
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All respondents (exposed =2,524, never exposed = 827)

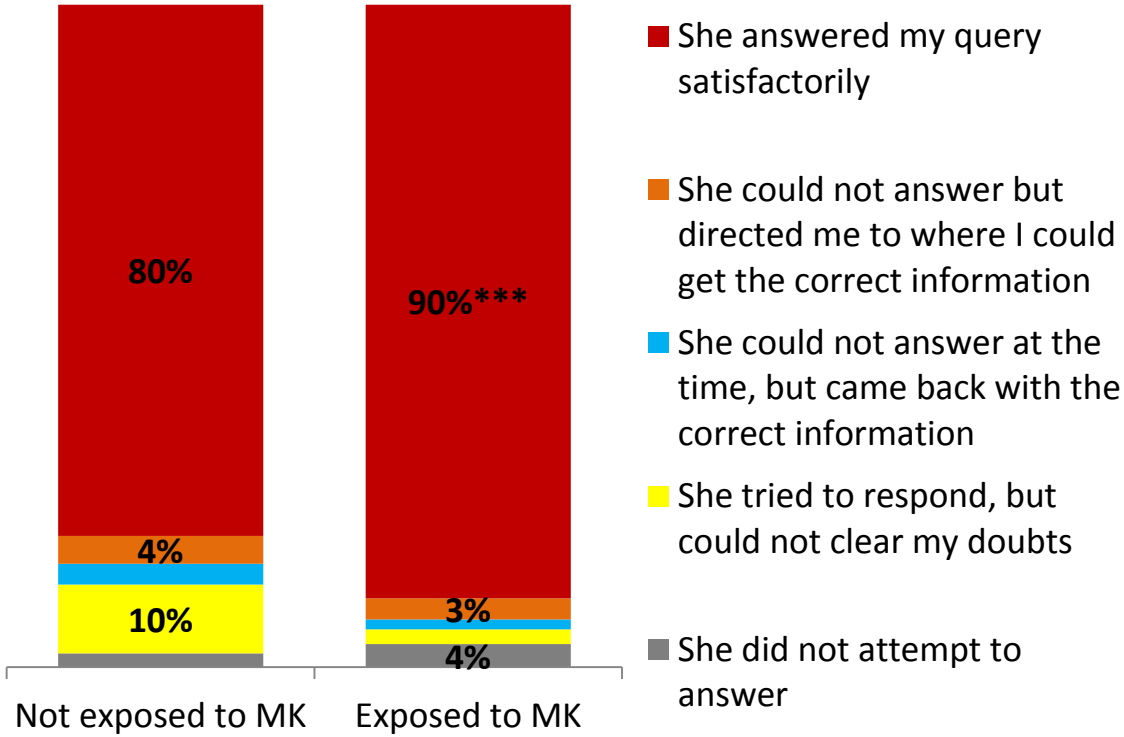
Engagement: Asking Questions

The proportion of beneficiaries who had asked their FLW a question in recent interactions was significantly higher among those exposed to MK (21%) compared to those not exposed (12%).
- Satisfaction with responses was higher among those exposed to MK; they were less likely than those not exposed to still have doubts in the information the FLW provided.

Had asked a question of the FLW in last two interactions:



How felt query was addressed:



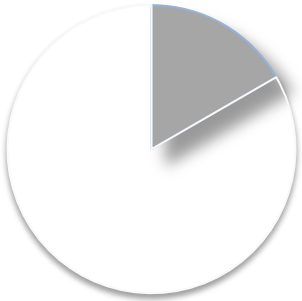
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All respondents (exposed =2,524, never exposed = 827)

Engagement: Duration of visits

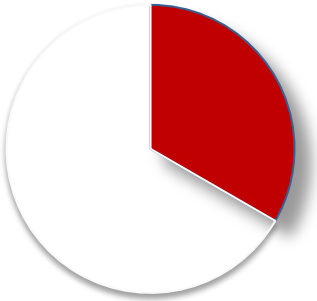
Findings indicate that visits where the FLW uses MK take more time, but that the efficiency of the visit (i.e. how quickly they are able to get beneficiaries to accept information) is improved.

Average duration of last interaction
(Median value, reported by beneficiaries)



10 min

per interaction
(Among never exposed)



20 min

per interaction
(Among exposed)

Qualitative feedback from FLWs on this aspect was often, on the surface, contradictory: FLWs describe that using MK takes time, and the duration of their visits has increased, at the same time they describe how using MK speeds things up. It would seem that while the actual duration of visits may have increased, FLWs feel the speed with which they are able to get the beneficiaries to accept information is improved, therefore they feel MK improves efficiency.

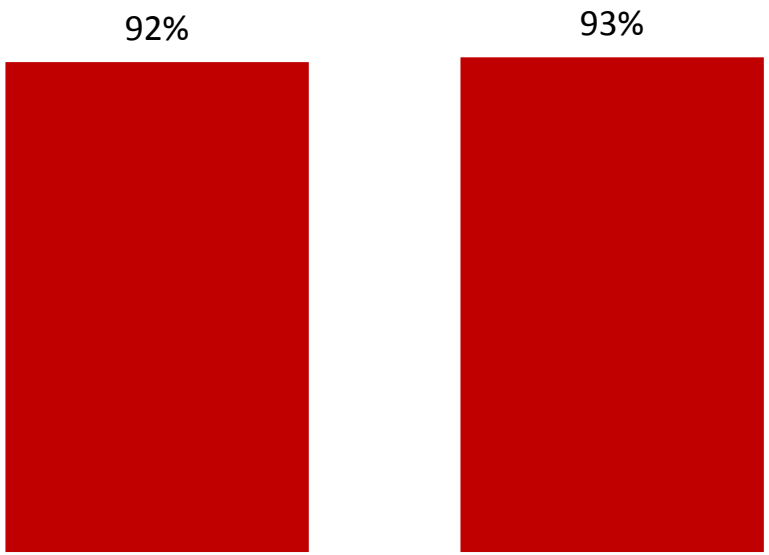
"If we use mobile Kunji then it takes more time… We prefer making them listen to Mobile Kunji so that we can save our time." **FLW, Khagaria**

Base: All respondents (exposed =2,524, never exposed = 827)

Engagement: Comprehension of information

Both beneficiaries and FLWs report that MK plays a key role in improved understanding of information.

Agreement with statements on role of MK
(among those exposed)



Qualitative feedback from FLWs re-inforces the role of MK in supporting beneficiary understanding information.

They feel it helps beneficiaries to understand information with far greater ease compared to when they just explained issues verbally and in turn that beneficiaries accept the information quicker as well.

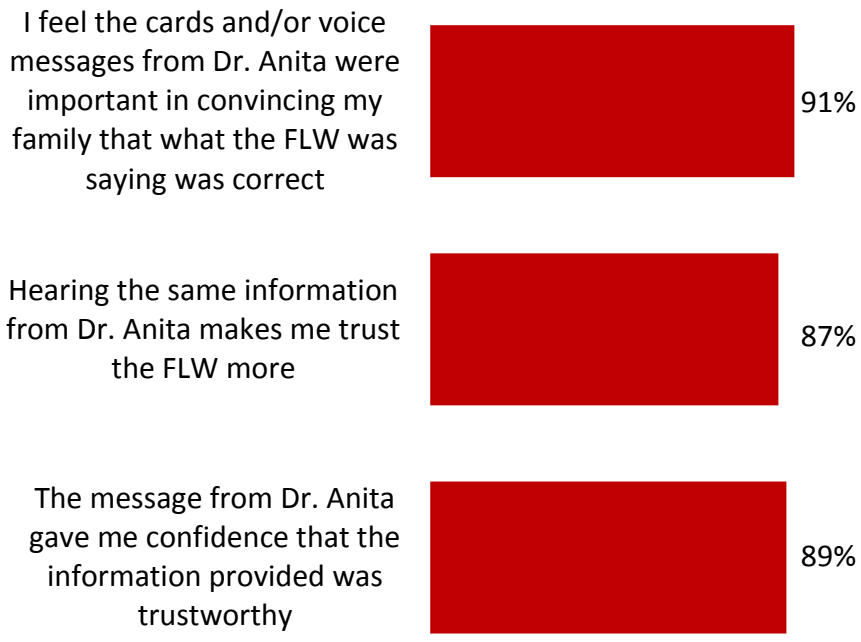
"Yes, they were not getting the concept when I used to explain it verbally and they are getting the concepts easily and pretty soon with cards."
FLW, Saharsa

Base: All respondents exposed to MK=2,524

Engagement: Dr Anita

Dr Anita appears to be key to the comprehension and acceptance of information among beneficiaries. Both beneficiaries and FLWs report this to be the case.

Agreement with statements on Dr Anita:
(among those exposed)



- FLWs report the beneficiaries' response to Dr Anita as overwhelmingly positive.
- Once recognised as a doctor (mostly, but not always linked with the Government) Dr Anita is instantly credible and captures beneficiary attention.
- Overall, FLWs described that she is engaging and very easy for beneficiaries to understand.
- The FLWs feel extremely warmly towards Dr Anita, with many describing how they would like to meet her and talk with her.

"Anita Didi speaks so nicely that even rude people feel like listening to her."
FLW, Patna

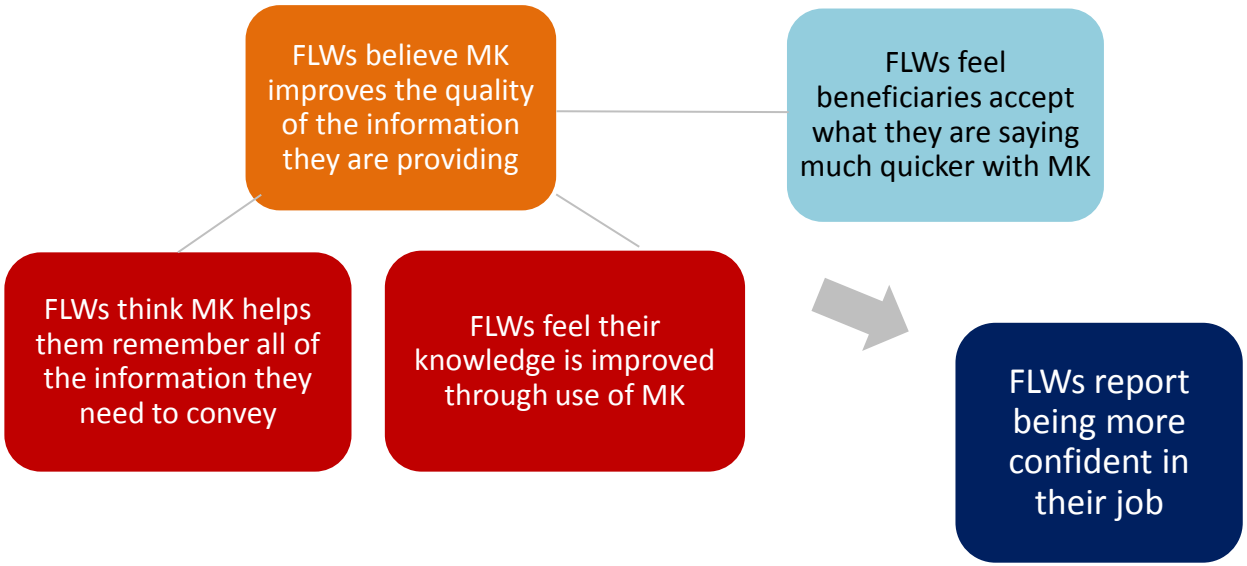
"She will not listen to us but she will agree pretty soon on hearing Dr Anita's voice, even they ask upfront to play the audio."
FLW, Khagaria

Base: All respondent exposed to MK=2,524

Engagement: FLW perceptions of MK impact on their work

FLWs describe multiple ways in which MK impacts them, all of which ultimately contribute to improved confidence and beneficiary engagement.

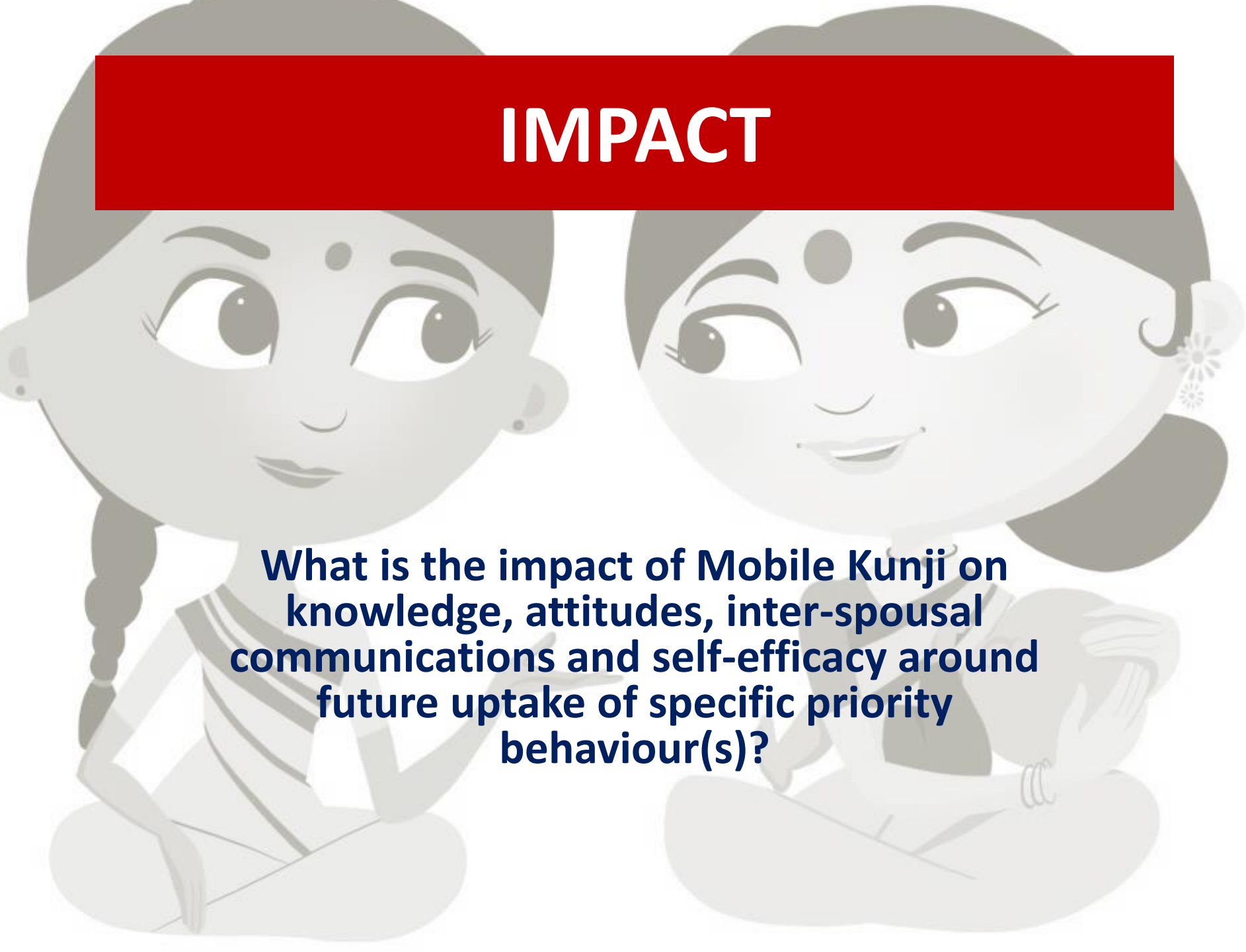
- Some go as far as to describe MK as a colleague, and many indicate that MK supports/ backs them-up.



"Earlier I used to speak alone and now this Mobile Kunji also speaks with me. Now I am sure that I won't do anything wrong. It controls me that you speak maturely and don't say any useless thing." **FLW, Patna**

"Maybe we will manage without it but since it is like a colleague. We spend some time with it and we tell people also to spend some time with it. This is very knowledgeable for us as well as for others too. So this is the most important thing. If a person is with me then he or she might be with me for few hours only. But this is my 24 hours colleague." **FLW, Patna**

IMPACT



What is the impact of Mobile Kunji on knowledge, attitudes, inter-spousal communications and self-efficacy around future uptake of specific priority behaviour(s)?

Birth Preparedness: Highlights

Beneficiaries who were exposed to messages on birth preparedness through MK were 2.72 times more likely to save their FLW's phone number.

A quarter (25%) of those exposed to messages on BP through MK were able to spontaneously mention at least three key BP steps, compared to 20% among those not exposed.

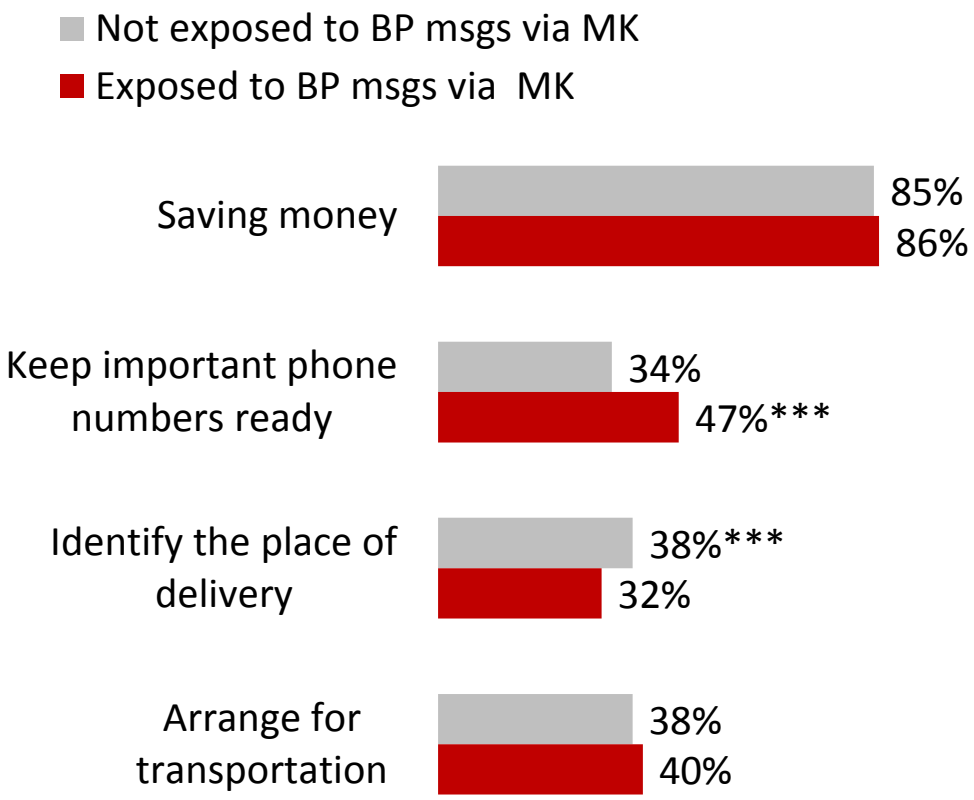
Agreement with the myth that early disclosure of pregnancy is negative was the same among those exposed and not exposed (35%) but **those exposed reported lower levels of agreement with other unsupportive attitudes**: that there is no need to prepare (17% vs. 25%) and no need to start thinking about transport until close to the birth (17% vs. 27%).

Agreement with supportive attitudes (registration is important/ place of delivery with husband) **was higher among those exposed.**

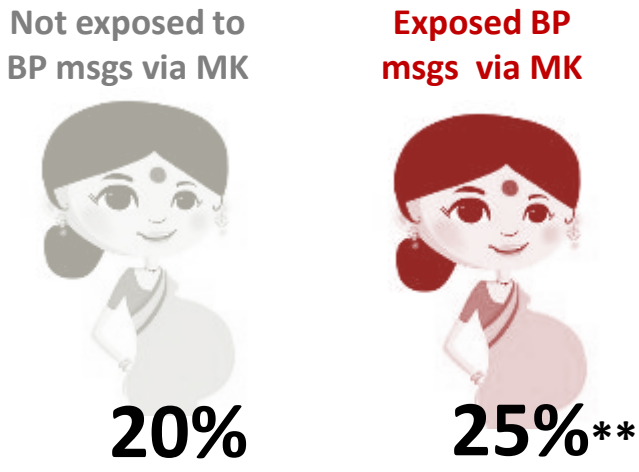
Birth Preparedness: Knowledge of key steps

The proportion of those exposed to BP messages through MK who could spontaneously mention at least three key birth preparations (25%) was significantly higher than among those not exposed (20%), with the difference largely due to the greater proportion mentioning keeping important phone numbers ready.

Spontaneous mentions of key BP steps



Spontaneous mentions of at least three key BP steps



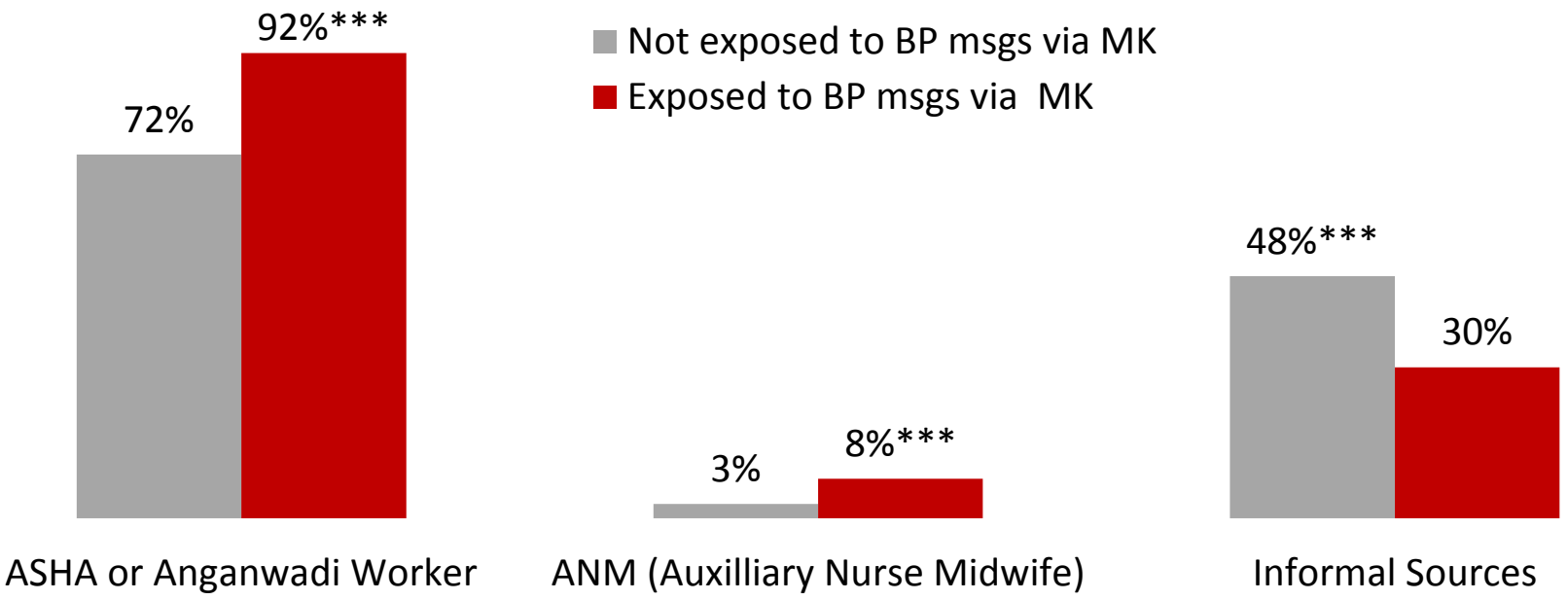
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All CPWs = 1,764 (exposed to BP msgs via MK = 825, not exposed to BP msgs via MK = 939)

Birth Preparedness: Sources of Information

A greater proportion of those exposed to BP messages through MK (92%) report that they received information on BP from their FLW, 20% higher than those not exposed.

Where received information on BP



Informal sources include MILs, husbands, neighbours, or any other friends or relatives

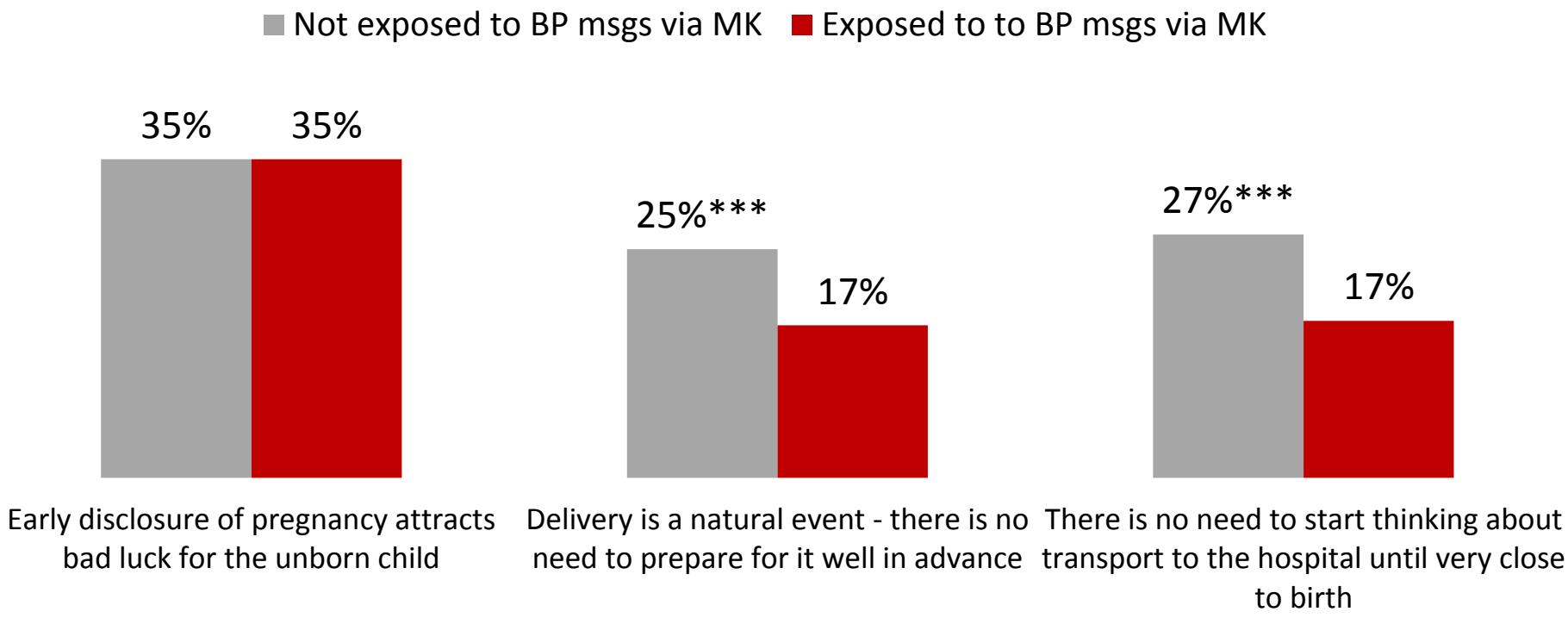
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All CPWs = 1,764 (exposed to BP msgs via MK = 825, not exposed to BP msgs via MK = 939)

Birth Preparedness: Attitudes - preparations

Those not exposed to BP messages through MK reported higher agreement with unsupportive attitude statements regarding the timing of preparations, but there was little difference in agreement levels around the myth that disclosing pregnancy too early attracts bad luck; MK may well be helping FLWs to address issues of timing, but some myths remain.

Agree/ strongly agree with statements:



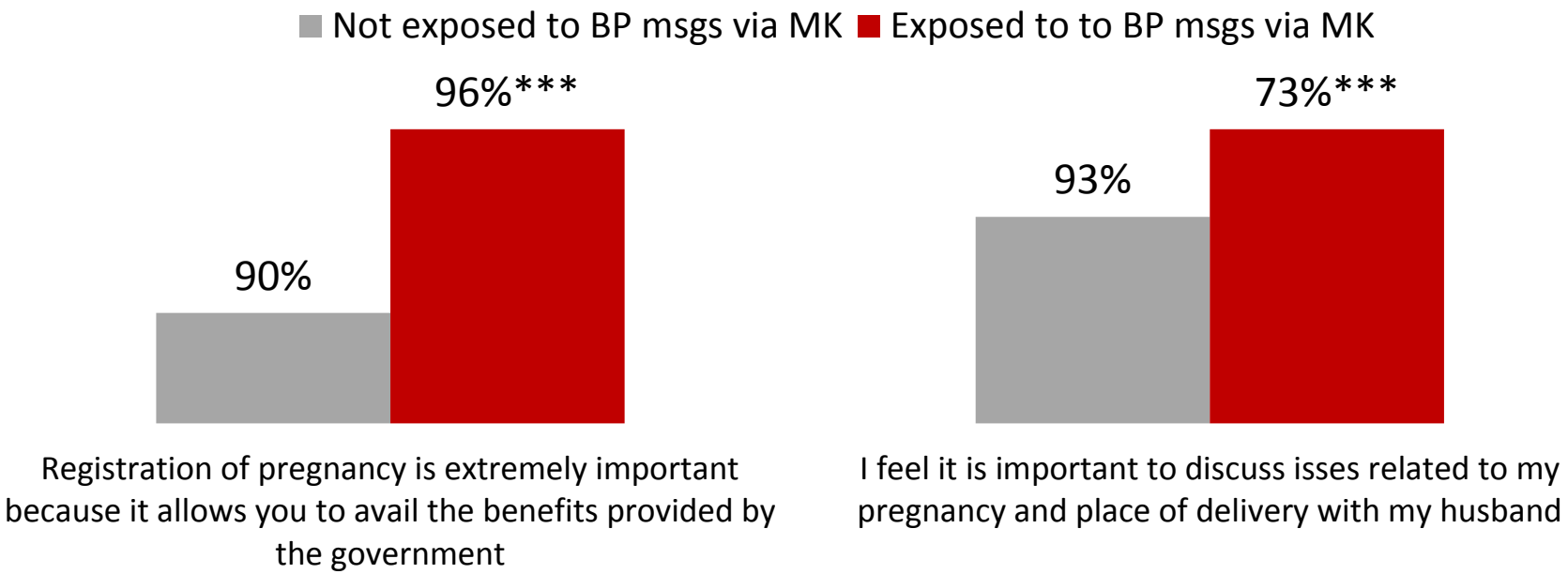
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All CPWs = 1,764 (exposed to BP msgs via MK = 825, not exposed to BP msgs via MK = 939)

Birth Preparedness: Attitudes

While agreement with key supportive attitudes towards birth preparedness was high overall, there were small positive significant differences between those exposed and not exposed to BP messages through MK related to registration and discussion.

Agree/ strongly agree with statements:



** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All CPWs = 1,764 (exposed to BP msgs via MK = 825, not exposed to BP msgs via MK = 939)

Birth Preparedness: Simple doable actions

For both of the simple doable actions around birth preparedness measured, those exposed were more likely to report having done them than those unexposed.

- A far greater proportion had registered for pregnancy with their FLW than had saved the FLWs phone number.

Had registered their pregnancy with the FLW

Not exposed to BP msgs via MK	Exposed to BP msgs via MK
	
71%	86%***

Have FLW's phone number saved at home and have easy access to the same

Not exposed to BP msgs via MK	Exposed to BP msgs via MK
	
29%	39%***

Whether the phone numbers are actually saved or not, was physically verified

** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All CPWs = 1,764 (exposed to BP msgs via MK = 825, not exposed to BP msgs via MK = 939)

Note: The study was not powered to compare practice indicators among those exposed and not exposed to MK

Birth Preparedness: Regression Analysis

Beneficiaries who were exposed to messages on birth preparedness (BP) through MK were 2.72 times more likely to save their FLW's phone number, in comparison to those never exposed.

This effect is significant, even when controlling for the other variables in the model.

The finding above is the result of logistic regression, carried out to examine the association between exposure to birth preparedness messages through Mobile Kunji and the dependent variable: ***whether the currently pregnant women saved their FLW's phone number at home and have easy access to the same*** (verified indicator).

Regression analysis enables us to control for other measured characteristics which may distort the association between Mobile Kunji and phone numbers. Therefore making more of a credible case for any association found.

Overall the model explains approximately 11.3%* of the differences in saving FLW's phone number between participants. The model therefore provides a fair description of the data

The other independent variables present in the model:

- Number of children woman already has
- Whether the currently pregnant women also has a child in the age group 6-11 months
- Month of pregnancy when the FLW made the first home visit
- District
- The asset quintile of the household

*Nagelkerke R square = 0.113

Complementary Feeding: Highlights

Beneficiaries who were exposed to messages on complementary feeding (CF) through MK were 1.72 times more likely to have fed their child at least one infant and young child feeding (IYCF) food item in the previous 24 hours.

A higher proportion of those exposed to MK messages on complementary feeding (62%), compared to those not exposed (49%), **were aware of the correct month to initiate complementary feeding.**

Agreement with statements on self efficacy related to complementary feeding was also higher among those exposed to MK messages on CF.

- 93% of those exposed agreed they will be able to convince their family to feed their child 3 times a day (compared to 80% of those not exposed).
- 94% of those exposed agreed that they think they can feed their child in a separate bowl (compared to 83% of those not exposed).

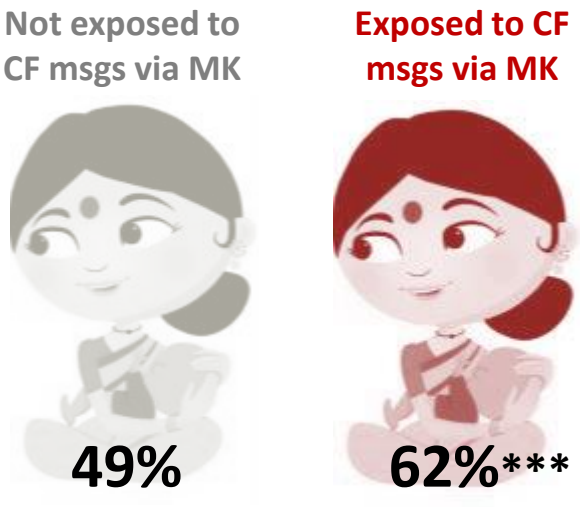
While agreement that a child should be able to digest semi-solid foods at six months was high – 85% (compared to 77% among those not exposed), **44% of those exposed still agreed that a child of 6-7 months will not be able to digest a small amount of ghee/ butter** (similar to not exposed – 43%).

Those **exposed also reported higher levels exclusive breastfeeding** (59% vs. 51%).

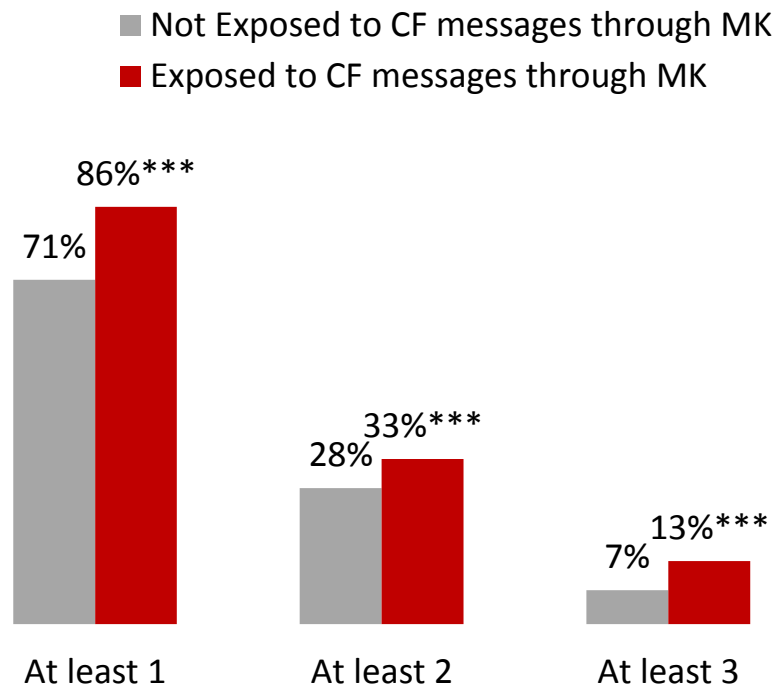
Complementary Feeding: Knowledge

Those exposed to CF messages through MK reported higher agreement that CF should be initiated at six months and knowledge of the broad food groups that babies should be fed.

Aware that CF must be initiated upon completion of six months



Number of broad food group(s) for complementary feeding mentioned



1. Vegetables/Fruits, 2. Milk Products, 3. Non-veg, 4. Eggs, 5. Legumes or pulses , 6. Oil/Ghee

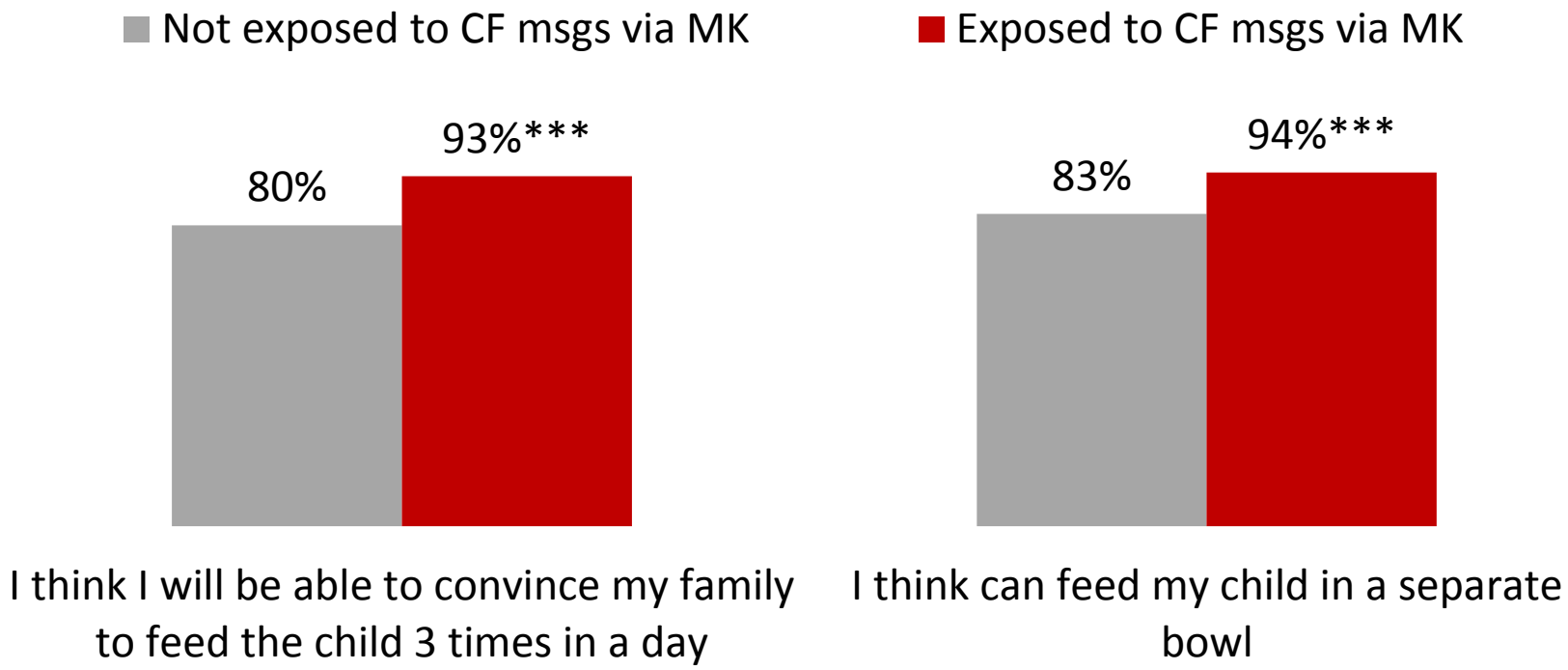
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All Ms6-11 = 1,633 (exposed to CF msgs via MK = 873, not exposed to CF msgs via MK = 760)

Complementary Feeding: Self efficacy

Agreement with the CF self-efficacy statements was high; for both statements agreement among those exposed was significantly higher.

Agree/ strongly agree with statements:



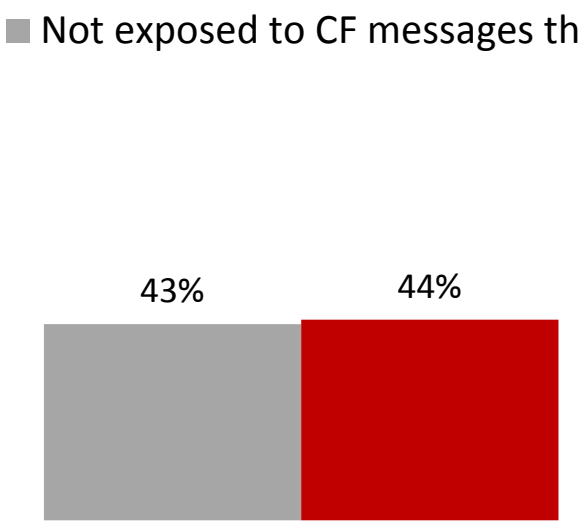
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All Ms6-11 = 1,633 (exposed to CF msgs via MK = 873, not exposed to CF msgs via MK = 760)

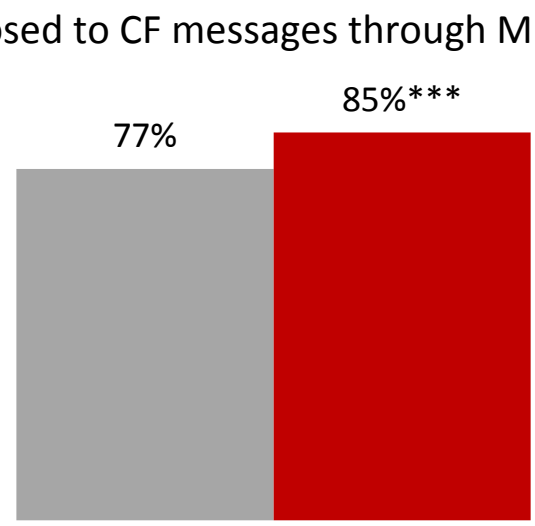
Complementary Feeding: Attitudes

Those exposed to MK reported higher agreement towards a child (of 6 months) being able to digest semi-solid food; little difference was observed among the two groups regarding digesting small amount of butter/ghee when poured on cooked food (an issue specifically addressed in the MK cards)

Agree/ strongly agree with statements:



A child of 6-7 months will not be able to digest even a small amount of butter or ghee poured on his/her cooked food



At 6 months, a child should be able to digest semi-solid complimentary foods like “khichdi” or mashed fruits/vegetables

** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All Ms6-11 = 1,633 (exposed to CF msgs via MK = 873, not exposed to CF msgs via MK = 760)

Complementary Feeding: Simple doable actions

For both of the simple doable actions related to complimentary feeding measured, those exposed were more likely to report positively.

Mothers of 6-11 month olds who reported having fed their child only breast milk till six months^

Not exposed to CF msgs via MK

51%

Exposed to CF msgs via MK

59%***

Mothers of 6-11 month olds who had fed their child any of the major food groups in last 24 hours^

Not exposed to CF msgs via MK

79%

Exposed to CF msgs via MK

85%***

**Vegetables/Fruits; Milk Products; Animal/Fish protein; Egg; Legumes/Pulses)*

** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All Ms6-11 who have initiated CF (exposed to CF msgs via MK = 834, not exposed to CF msgs via MK = 717)

^Note: The study was not powered to compare practice indicators among exposed and unexposed

Complementary Feeding: Regression Analysis

Beneficiaries who were exposed to messages on complementary feeding (CF) through MK were 1.72 times more likely to have fed their child at least one infant and young child feeding (IYCF) food item in the previous 24 hours, in comparison to those never exposed.

This effect is significant, even when controlling for the other variables in the model.

The finding above is the result of logistic regression, carried out to examine the association between exposure to complementary feeding messages through Mobile Kunji and the dependent variable: ***whether mother fed her child at least one infant and young child feeding (IYCF) food items yesterday***.

Regression analysis enables us to control for other measured characteristics which may distort the association between Mobile Kunji and phone numbers. Therefore making more of a credible case for any association found.

Overall the model explains approximately 20.8%* of the differences in saving FLW's phone number between participants. The model therefore provides a good description of the data

The other independent variables present in the model:

- Social category of the household
- Age of the youngest child
- Type of household structure
- Families' attitude towards their FLW
- District of the respondent

*Nagelkerke R square = 0.208

Family Planning: Highlights

Beneficiaries exposed to FP messages through MK reported higher agreement that keeping a three year gap between children makes sense (90% vs. 81% among unexposed) and that they are confident they can convince their husband to birth space (83% vs. 77%).

68% of those exposed were aware that the ideal gap between two children should be three years (compared to 59% of those not exposed).

Beneficiaries exposed to FP messages through MK reported good awareness of birth spacing and family planning methods, differences in awareness between those exposed to FP messages and those not exposed were inconsistent.

Agreement that they do not trust OCPs because they can affect your chances of getting pregnant was similar between exposed and not exposed (42% vs. 41%).

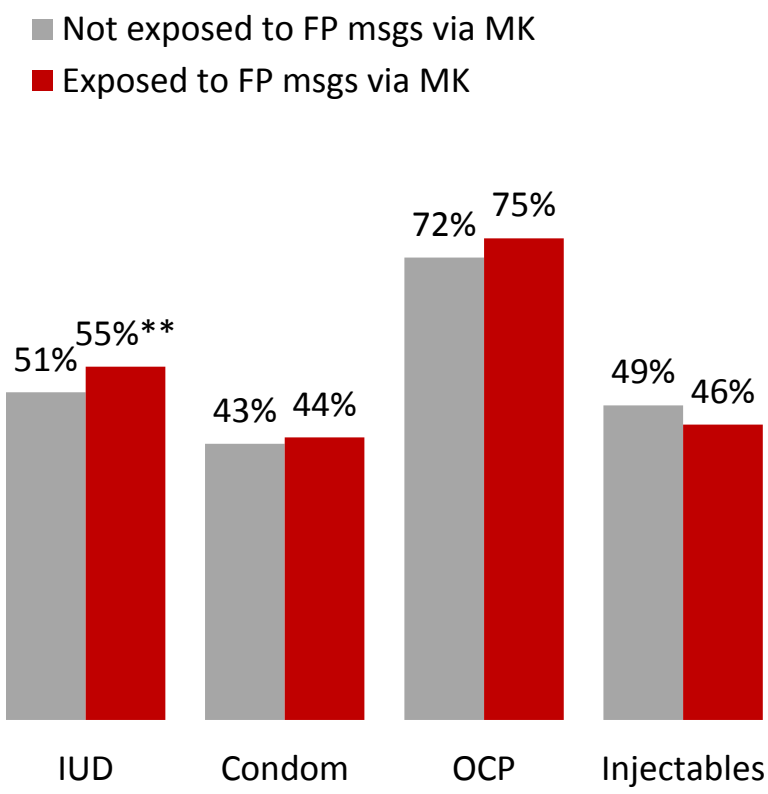
There was **no difference in reported levels of using modern FP methods** between those exposed to MK and those not exposed, this was 17% for both groups**.

**** Because there was no significant difference reported in a simple doable step related to FP, regression analysis was not undertaken for this theme.**

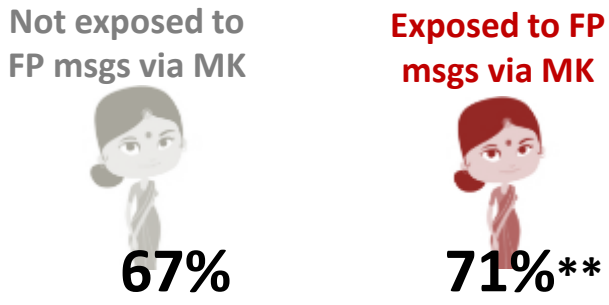
Family Planning: Knowledge

Beneficiaries reported good awareness of birth spacing and family planning methods, with knowledge generally slightly higher among those exposed to FP messages through MK compared to those not exposed.

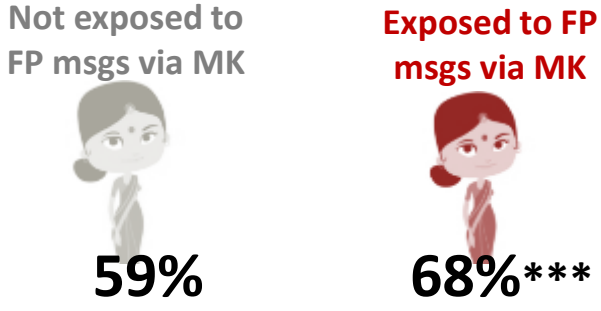
Awareness of modern methods of family planning



Aware of any two spacing methods



Believe the ideal gap between two children should be 3 years



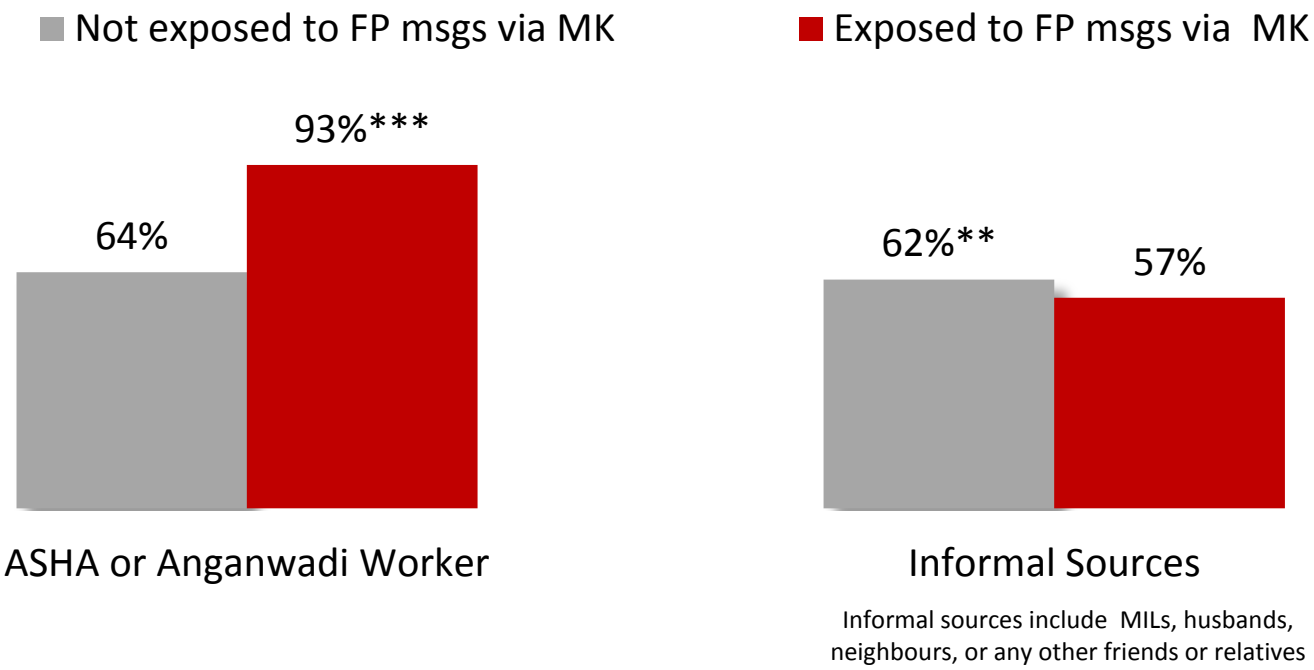
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All respondents = 3,351 (exposed to FP msgs via MK = 1213, not exposed to FP msgs via MK = 2138)

Family Planning: Sources of information

The majority (93%) of those exposed to FP messages through MK consider FLWs as a key source of information on family planning, significantly higher than those not exposed (64%).
- Less than six in ten (57%) of those exposed also rely on informal sources, compared to 62% of those not exposed.

Major sources of information around family planning



Informal sources include MILs, husbands, neighbours, or any other friends or relatives

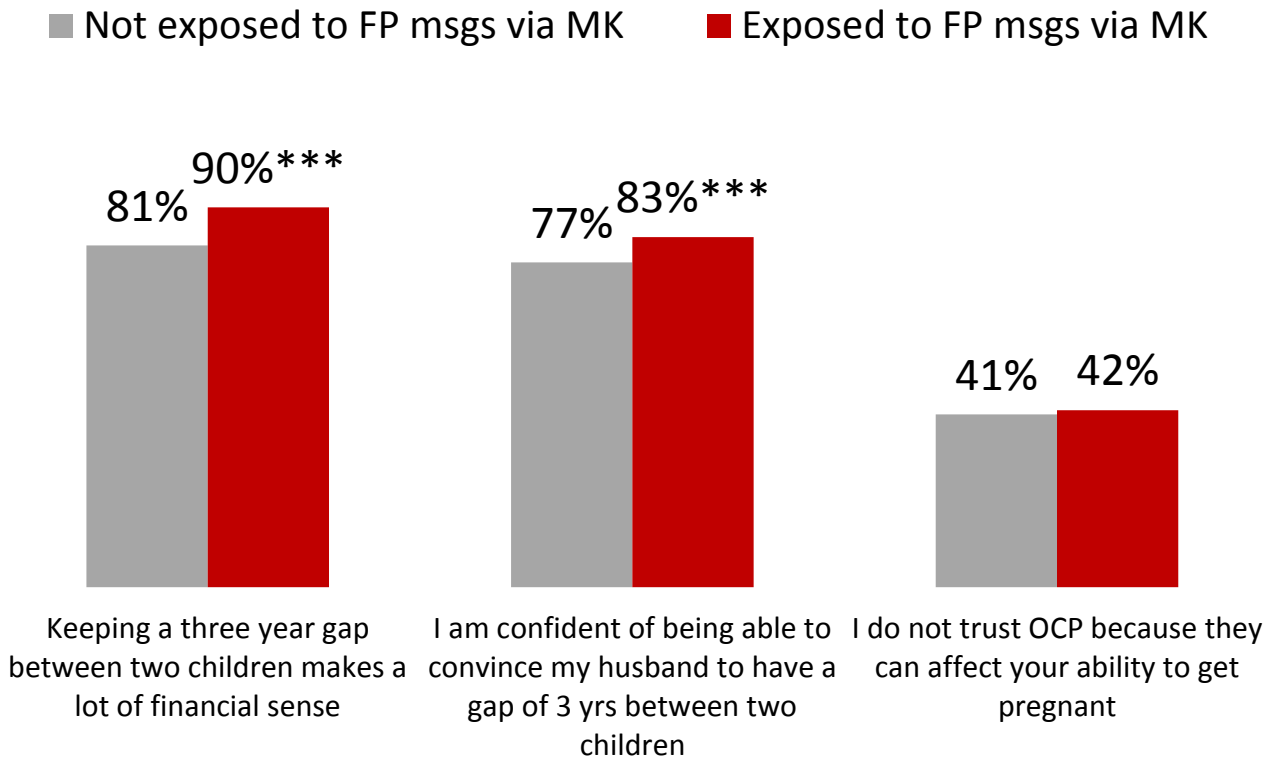
** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All respondents = 3,351 (exposed to FP msgs via MK = 1213, not exposed to FP msgs via MK = 2138)

Family Planning: Attitudes

Those exposed to FP messages though MK reported high agreement that birth spacing makes sense, and that they are confident they can convince their husband to birth space. However, 42% agreed that they do not trust the oral contraceptive pill (OCP) which indicates there remain myths about modern family planning methods which may be undermining good knowledge and efficacy.

Agree/ strongly agree with statements:



Qualitative feedback from FLWs highlighted how challenging discussing the issue of FP with beneficiaries is; there are many myths around the side-effects of various FP methods to counter, and even if the woman has the knowledge and understanding herself husbands remain a key decision maker in adopting practice.

** difference significant at the 5% level/ *** difference significant at the 1% level

Base: All respondents = 3,351 (exposed to FP msgs via MK = 1213, not exposed to FP msgs via MK = 2138)

Family Planning: Simple doable step

Despite higher knowledge and the FLW being a key source of information for those exposed to MK there was no reported no difference in practice on use of family planning methods.

- It is acknowledged in the design for the overall project that husbands are key to decisions on this issue. Directly targeting husbands is beyond the scope of MK and is addressed in other elements of the intervention.

Reported use of any modern FP method^:

Not exposed to FP msgs via MK

17%

Exposed to FP msgs via MK

17%

Reported use of female sterilization^:

Not exposed to FP msgs via MK

9%

Exposed to FP msgs via MK

12%**

** difference significant at the 5% level/ *** difference significant at the 1% level

Base: Ms6-11 = 1,633 (exposed to FP msgs via MK = 652; not exposed to FP msgs via MK = 980)

^Note: The study was not powered to compare practice indicators among those exposed and not exposed to MK

Conclusions and Recommendations

Mobile Kunji is highly valued by front line workers as a job aid, they credit MK with improving beneficiary comprehension and trust, as well as their own knowledge and confidence. FLWs describe MK as very supportive to their work and as having a positive impact on their interactions with beneficiaries as well as on their own knowledge and confidence. Beneficiaries also report that it increases comprehension of the information provided by the FLW. Dr Anita is key to this, she is regarded as a colleague by the FLWs and is a credible, engaging and authoritative voice for the beneficiary. **The success of Dr Anita should be leveraged in other elements of the intervention, where possible.**

The FLW is considered a key source of information for all of the three most used themes (birth preparedness, complementary feeding and family planning), with findings indicating that MK is adding to the trust and credibility of the FLW. **Future research could further explore why the remaining themes are used less by FLWs; the project team could explore ways to encourage MK use for communicating messages other than BP, CF and FP.**

There are several factors that influence whether or not the FLW uses MK. Sometimes the issue is practical (connectivity/ lack of minutes) or whether the beneficiary has the time available to discuss in detail, but the profile of the FLW (her experience) and the beneficiary (her education, stage of pregnancy and how many children she already has, i.e. how difficult she may be to convince) also affect this (demographics like social category and religion do not). Overall, decisions on usage appear to be linked to FLW's judgement of the beneficiary's need and ability to take on board information. **Encouraging FLWs to share experiences/ success using MK to convince difficult clients may help increase usage, the project team should also explore any potential ways to overcome the practical barriers to usage.**

Conclusions and recommendations cont.

Findings suggest that overall engagement during interactions is better when MK is used; visits last longer (although FLWs also see MK as making their work more efficient), beneficiaries ask more questions and they are more likely to go on to discuss with others what has happened in the visit. However, **levels of questioning and follow-up discussion are relatively low and we should consider how this could be further increased.**

The study showed encouraging differences by exposure in levels of knowledge and supportive attitudes related to BP, CF and FP. However, general knowledge of some aspects still appears relatively low and there remain some myths that are proving harder to shift. **Look again at how best to address the harder-to-shift myths and unsupportive attitudes, across the intervention.**

Although the study was not designed to identify impact of MK exposure on practice, analysis does show higher levels of several of the simple doable actions measured around birth preparedness and complementary feeding, and a positive relationship between exposure to MK and taking these steps.

The same positive difference in simple doable actions was not seen for family planning. Findings suggest that this is one of the most difficult themes for the FLW to address with the beneficiary, largely because of the other influencers and decision makers involved in this practice (husbands) as well as some unhelpful myths about modern family planning methods. While MK cannot directly target husbands (other parts of the intervention are tackling this) **the project team should explore if there is more that MK can do to address these issues directly during the FLW interactions.**

Annexes

1 - Lessons Learned
2 - Regression process and quality assurance
3 - Birth Preparedness Regression: Additional Detail
4 - Complementary Feeding: Additional Detail
5 - Sampling
6 - Weighting
7 - Qualitative sample detail

Lessons Learned

- Capturing further demographics details of the beneficiary in the survey (e.g. education and literacy) would have been useful; the qualitative research highlighted that these likely effect the dynamic in FLW-beneficiary interactions.

- It has proven very difficult to capture on the survey extremely specific details, like birth registration number, date of registration and the month of pregnancy in which the woman got registered. Ideally this might have been captured through secondary sources/govt. records, however experience indicates that these records are not accurate/ up to date.

- It may be useful to undertake further regression analyses on the other simple doable actions and drivers of behaviour change such as knowledge, showing significant differences by exposure.

- While the study provides a good overview of the top three themes discussed with these target groups, we have not explored usage of the other themes and there may be interesting further learnings on effectiveness around these.

- Additional qualitative research exploring behaviour-specific myths and attitudes could provide helpful additional insight.

Regression process and quality assurance

Logistic regression was carried out using SPSS software, version 20.

A list of potential confounders was developed to include all socio-economic, demographic and other background variables included in the surveys for both FLW and beneficiaries.

We tested the significance of these variables against the dependent variables to assess whether there was an association between them in bivariate analyses.

If there was no significant relationship, but we believed that there was a theoretical justification for their inclusion in the regression, then we included them. All variables showing a significant relationship to the dependent variables were also included.

We used an iterative process of backwards model selection, in which all potential confounders were included in the model (alongside the exposure variable). At each stage, the variable with the least significant z-test result in the model was excluded, and then the model was re-run. Previously excluded variables were then re-included to test if their effects were now significant. This process continued until a parsimonious model was found, in which all variables had a significant relationship to the dependent variable.

Following discussion of the preliminary findings, and the decision to pursue the models we had developed, interaction effects were tested to see if any of the confounders interacted meaningfully with exposure in the model. This was not the case. Additionally, diagnostics were performed on the models to test for outliers. These were found to be within the acceptable levels: the percentage of standardized residuals was less than 5% of the sample, while non-significant Hosmer and Lemeshow tests indicated the models were a good fit for the data.

In addition, the models were re-run using bootstrapping to derive robust standard errors. The final model contains standard errors and significance levels from the bootstrap results and odds ratio's from the pre-bootstrap model.

Birth Preparedness Regression: Final Model

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Independent Variables	Odds Ratio
Exposure to BP-MK	2.719**
Parity - Parity Zero (REF)	
Parity 1	1.637**
Parity 2+	1.384**
Districts – *Patna* (REF)	
East Champaran	.357**
Samastipur	.439**
Begusarai	.576**
West Champaran	.437
Khagaria	.633
Saharsa	.766
Gopalganj	1.346
Month of FLW visit	1.087**
Asset score - Quintile 1 – *Poorest* (REF)	
Quintile 2	1.390
Quintile 3	1.819**
Quintile 4	3.153**
Quintile 5 - *Richest*	2.417**
Respondent is pregnant & mother of child 6-11 months)	2.337

Birth Preparedness Regression: All variables

Dependent variable: "Whether Currently Pregnant Women saved their FLW's phone number at home and have easy access to the same – Verified (Binary: Yes or No)"

Independent variables:

1.Exposure to at least one message on birth preparedness through Mobile Kunji
2.Districts
3.Asset score created from wealth index
4.BPL status of the household
5.Occupation of beneficiary (housewife/others)
6.Occupation of chief wage earner (labour/non-labour)
7.No. of years of marriage
8.Whether the pregnant women is also a mother of child 6-11 months
9.Parity (no. of children)
10.Month of pregnancy when ASHA visited for the first time
11.Social category of the beneficiary
12.Religion of the beneficiary (Hindu/non-Hindu)
13.Whether the woman is key decision maker in the household on daily expenses
14.Whether the woman is key decision maker in the household on health expenditure
15.Whether the MIL/any other married female stays in the household
16.Social norms around birth preparedness
17.Trust on FLW on issues around birth preparedness
18.Trust on FLW in general
19.Family's trust on FLW

Those highlighted in red are in final model

Birth Preparedness Regression: Distribution of IVs across DV

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Indicator	Whether Currently Pregnant Women saved their FLW's phone number at home and have easy access to the same							
Exposure to BP message on MK	Exposed – 39%	Not Exposed - 29%						
Districts	Begusarai – 43%	Gopalganj – 33%	Khagaria – 41%	W. Champaran – 24%	E. Champaran – 41%	Saharsa – 29%	Samastipur – 28%	Patna – 33%
Asset Scores	Q1 – 21%	Q2 -26.9%	Q3 - 36.7%	Q4 - 42.2%	Q5 - 38.7%			
BPL status	No - 31.9%	Yes - 34.7%						
Respondent Occupation	Not Housewife - 35.4%	Housewife - 33.6%						
CWE Occupation	Not Laborer - 35.5%	Laborer - 32.4%						
Also mother of child 6-11	No - 33.3%	Yes - 52.2%						
Parity	No Child - 30.9%	1 child - 37.1%	2 or more - 33.7%					

Birth Preparedness Regression: Distribution of IVs across DV

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Indicator	Whether Currently Pregnant Women saved their FLW's phone number at home and have easy access to the same			
Religion	Non-Hindu - 27.0%	Hindu - 34.9%		
Social Category	General - 33.9%	SC - 30.8%	ST - 23.1%	OBC - 35.4%
Decision Maker -Daily Expenses	No - 36.2%	Yes - 27.8%		
Decision Maker - Medical Expenses	No - 34.4%	Yes - 31.8%		
FLW religion	Non-Hindu - 22.0%	Hindu - 34.6%		
FLW social category	General - 33.6%	SC - 29.1%	ST - 15.0%	OBC - 35.7%
Mobile Academy attempted- FLW	Yes - 33.2%	No - 36.3%		
Mobile Academy completed– FLW	Completed + Certificate - 34.5%	Completed + received message - 28.2%	Currently undertaking - 32.4%	Already left the course - 30.0%

Birth Preparedness Regression: Distribution of IVs across DV

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Indicator	Whether Currently Pregnant Women saved their FLW's phone number at home and have easy access to the same		
Education of FLW	Below 12th - 36.1%	Completed 12th or above - 30.6%	
Beneficiary-FLW caste match	Matched - 36.1%	Not Matched - 33.6%	
Beneficiary-FLW religion match	Matched - 34.8%	Not Matched - 26.7%	

Complementary Feeding Regression: Final Model

Independent Variable	Odds Ratio
Exposure to CF MK	1.720**
Social category – General (REF)	
Scheduled caste	.786
Scheduled tribe	.337**
OBC	.625
Districts – *Patna* (REF)	
East Champaran	.602
Khagaria	.870
Saharsa	.984
Begusarai	1.331
West Champaran	1.434
Samastipur	1.588
Gopalganj	2.093
Age youngest child – Age 6 months (REF)	
7 months	3.993**
8 months	7.058**
9+ months	14.265**
Structure of house – *Pucca structure* (REF)	
Semi-*pucca structure*	.659**
Kaccha structure	.641**
Attitude of family towards FLW	1.094**

Complementary Feeding Regression: All variables

Dependent variable: "Whether mother fed her child at least one IYCF food items yesterday (Binary: Yes or No)"

Independent variables:

1.Exposure to at least one message on birth preparedness through Mobile Kunji
2.Parity
3.Districts
4.Asset score created from wealth index
5.Type of house structure
6.Whether the pregnant women is also a mother of child 6-11 months
7.Social category of the beneficiary
8.Religion of the beneficiary (Hindi/Non-Hindu)
9.Whether the woman is key decision maker in the household on daily expenses
10.Whether the woman is key decision maker in the household on health expenditure
11.Whether currently lived with the MIL/any other married female stays in the household
12.Whether currently lived with the husband
13.No. of years of marriage
14.Age of the youngest child
15.Occupation of beneficiary (Housewife/Others)
16.Occupation of chief wage earner (Labour/Non-labour)
17.BPL status of the household
18.Attitude towards Complementary feeding
19.Confidence to adopt ideal Complementary behaviour
20.Trust on FLW in general
21.Family's trust on FLW

Those highlighted in red are in final model

Complementary Feeding Regression: Distribution of IVs across DV

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Indicator	Whether Mothers 6-11 months who fed at least 1 IYFC food item to the child yesterday							
Exposure to CF message on MK	Exposed - 81.2%	Not Exposed - 74.9%						
Districts	Begusarai - 76.4%	Gopalganj - 90.7%	Khagaria - 71.3%	W. Champaran - 80.7%	E. Champaran - 73.6%	Saharsa - 81.7%	Samastipur - 83.0%	Patna - 75.3%
Asset Scores	Quintile 1 - 73.2%	Quintile 2 - 80.5%	Quintile 3 - 78.2%	Quintile 4 - 82.3%	Quintile 5 - 78.6%			
BPL status	No - 76.8%	Yes - 78.8%						
Respondent Occupation	Not Housewife - 77.4%	Housewife - 78.4%						
CWE Occupation	Not Labour - 78.5%	Labour - 78.1%						
Also mother of child 6-11	No - 78.1%	Yes - 80.4%						
Parity	No child - 74.1%	1 child - 76.4%	2 or more child - 79.3%					

Complementary Feeding Regression: Distribution of IVs across DV

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Indicator	Whether Mothers 6-11 months who fed at least 1 IYFC food item to the child yesterday				
Religion	Non-Hindu - 80.9%	Hindu - 77.9%			
Social Category	General - 82.2%	SC - 80.6%	ST - 67.9%	OBC - 77.0%	
Decision Maker – Daily Expenses	No - 77.8%	Yes - 79.1%			
Decision Maker – Medical Expenses	No - 76.9%	Yes - 82.3%			
Age of the child	6 months - 51.4%	7 months - 79.8%	8 months - 87.0%	9 months or more - 93.3%	
Type of House Structure	Pucca - 80.4%	Semi Kucha - 77.2%	Kucha -77.0%		
Presence of any married women/MIL	No - 78.1%	Yes - 78.2%			
Whether live with husband	No - 78.0%	Yes - 79.2%			

Complementary Feeding Regression: Distribution of IVs across DV

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Indicator	Whether Mothers 6-11 months who fed at least 1 IYFC food item to the child yesterday			
Religion of FLW	Non-Hindu - 85.8%	Hindu - 77.6%		
Social Category for FLW	General - 77.1%	SC - 77.8%	ST- 83.3%	OBC - 78.6%
Attempted Mobile Academy–FLW	Yes - 77.5%	No - 81.9%		
Completed Mobile Academy–FLW	Completed + Certificate - 78.7%	Completed + received message - 73.1%	Currently Undergoing the course - 77.4%	Left the course - 80.0%
Education of FLW	Below 12th - 78.3%	Completed 12th or above - 78.0%		
Beneficiary-FLW caste match	Matched - 83.9%	Not Marched - 77.6%		
Beneficiary-FLW religion match	Matched - 77.6%	Not Matched - 83.6%		

Sampling: Rationale for Stratification

This table illustrates distribution of exposed & unexposed from listing data, by IVR usage strata.

Agreement between the IVR usage strata of the FLW and the MK exposure level of the beneficiary can be observed from the table below.

FLW's IVR usage category	Target group	Total listed	Total exposed	% Exposed in each category
High	CPW	1364	773	**60.7**
	Mothers	1302	846	
	Total	**2666**	**1619**	
Medium	CPW	1493	635	**48.0**
	Mothers	1299	704	
	Total	**2792**	**1339**	
Low	CPW	1345	565	**43.6**
	Mothers	1210	549	
	Total	**2555**	**1114**	

Sampling: Stratification - Implications

As mentioned earlier, three tertiles were formed in the sampling frame for each district and thereafter, equal number of FLWs were sampled from each tertile through simple random sampling.

Using systematic random sampling approach to sample FLWs would also have yielded similar a sample to the one achieve – in terms of proportion of FLWs sampled from each stratum.

Therefore, it can be concluded that while stratification enabled us:

(1) to have a more representative view of the varying levels of MK IVR usage and;

(2) allowed to achieve the number of exposed and unexposed beneficiaries required for the sample to be powered;

It did not have any implication on the levels of bias in sampling.

Weighting

It was deemed necessary to weight the beneficiary data to ensure that there was no bias in the results based on FLW's usage of MK and the way in which beneficiaries were selected.

At the FLW usage level, this means we wanted to make sure that sampling was a fair and representative reflection of the level of MK usage across the FLW population (that the sample was representative of the proportion of FLWs who were high users, medium users and low users of MK). At the beneficiary selection level the weighting was necessary because of the fact that we sourced and sampled beneficiaries through their FLWs. FLWs have varying numbers of beneficiaries within their catchment – where an FLW had only a few beneficiaries, those beneficiaries had a greater chance (or probability), at an individual level, to be selected in the sample compared to beneficiaries serviced by an FLW with a large number of clients in her catchment. We used weighting to adjust and effectively 'cancel out' this probability bias.

To account for the two potential levels of bias (described above) the weighting procedure we employed had two 'layers'. One 'layer' of weights was to ensure that the data was reflective of the actual levels of MK usage among FLWs. For this weighting layer, we based weights on the planned sampling of FLWs by their usage categorisation (High, Medium, Low usage of MK based on minutes used). We used the planned sample for this as it was developed using the usage data we had for the FLWs enrolled in the MK programme – this was the best data we had on levels of usage of MK. The second 'layer' of weights was designed to adjust for the unequal probability of selection of beneficiaries.

Qualitative Sample Detail

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Champaran		Khagaria		Patna		Saharsa		Total
Areraj	Paharpur	Beldaur	Chautham	Bihta	Paliganj	Bakhtyarpur	Sour Bazaar	
FLW IDI High Usage x 2	FLW IDI High Usage x 2	FLW IDI High Usage x 3	FLW IDI High Usage x 2	FLW IDI High Usage x 3	FLW IDI High Usage x 2	FLW IDI High Usage x 1	FLW IDI High Usage x 2	FLW IDI High Usage x 18
FLW IDI Low Usage x 1	FLW IDI Low Usage x 1	-	FLW IDI Low Usage x 1	-	FLW IDI Low Usage x 1	FLW IDI Low Usage x 2	FLW IDI Low Usage x 1	FLW IDI Low Usage x 6
FLW FGD x 1	-	-	FLW FGD x 1	-	FLW FGD x 1	FLW FGD x 1	-	FLW FGD x 4
PTG MGD x 2	PTG MGD x 2	PTG MGD x 2	PTG MGD x 2	PTG MGD x 2	PTG MGD x 2	PTG MGD x 2	PTG MGD x 2	PTG MGD x16
STG MGD x 1	STG MGD x 1	STG MGD x 1	STG MGD x 1	STG MGD x 1	STG MGD x 1	STG MGD x 1	STG MGD x 1	STG MGD x8