Increasing the Effectiveness of Family Planning Promoters in Nampula and Sofala Provinces

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1. Introduction and justification

1.1 Description of the project

This project is conducted by the International Food Policy Research Institute (IFPRI) and the Office of Evaluation Sciences (OES), an interdisciplinary team housed at the US General Services Administration (GSA), and Population Services International (PSI)-Mozambique as part of Pathfinder International's Integrated Family Planning Program (IFPP), which is funded by USAID. Specifically, this project is in collaboration with PSI-Mozambique in urban areas of two provinces in the country: Sofala and Nampula.

As part of the IFPP program administered by PSI, community "promoters" meet with beneficiaries one-on-one at home to promote family planning uptake and utilization by providing referrals to local clinics. These community agents utilize a mobile platform (Connecting with Sara, or CwS) to record real-time information about the beneficiaries and community agent activity. Nurses employed by PSI and working in local health clinics similarly utilize the mobile platform to record real-time information about referral redemptions. However, interactions with beneficiaries have been limited to face-to-face only; the potential for mobile interaction or follow-up has yet to be fully realized. The first phase of this project therefore aims to explore one way in which mobile technology can be leveraged to promote family planning knowledge and utilization in this context.

This project contributes to the literature in three key ways: (i) examining how alternative forms of communication can supplement existing family planning promotion programs, (ii) providing a rigorous analysis of a family planning intervention leveraging mHealth across a relatively broad population, and (iii) evaluating how the timing and frequency of messages impacts behavioral health outcomes. Finally, it provides an opportunity for similar interventions to be replicated in other countries where PSI operates.

1.2 Justification

In both Sofala and Nampula, Mozambique, only about 50% of women who receive a referral for family planning from a Population Services International (PSI) promoter actually follow through and visit a clinic where they can receive contraceptive counseling and access a contraceptive method if they wish; this redemption rate is estimated based on administrative data on ongoing program operation. This pattern suggests that there is room to increase redemption rates by improving the efficiency of PSI promoters when they interact with beneficiaries. Among women who receive referrals, around 50% of women who ultimately redeem their referral do so the same day, while 75% redeem within four days. This pattern is consistent with the hypothesis that redemptions are most likely to be observed in the extreme short-term while the information provided by the promoter is still highly salient, and this salience may diminish rapidly over time as women who have not redeemed their referral quickly are much less likely to ever redeem.

General reviews of the literature on mobile health highlight how thus far it has been leveraged primarily either by providers as an alternative mode of communication to reach out to clients who already have appointments for facility-based care, or to promote adherence to medication managing chronic conditions like HIV (Chib et al. 2015; Gurman et al. 2012). Meanwhile, family planning interventions primarily entail hotlines or SMS mass media campaigns rather than targeted reminders (Corker 2010, Higgins-Steele et al. 2015).

In general, there are very few evaluations examining the effectiveness of mobile reminders designed to encourage take-up of a preventive health product such as contraception. Previous literature analyzing electronic follow-up in roughly similar contexts has found effects of differing magnitude contingent upon initial design and sample size.

One study in Zanzibar utilized a cluster-randomized trial to analyze the effects of SMS follow-up reminders for pregnant women receiving antenatal care (Lund et al. 2012). A total of 2,550 women were divided between an intervention group of twelve clinics receiving an intensive SMS and voucher intervention and a control group of twelve clinics receiving standard care. The mobile intervention generated an average increase in skilled delivery care at birth of 13 percentage points across all participants from a base rate of 47% in the control group. This increase was driven by urban women (rather than rural women), who saw a 32 percentage point increase from a base rate of 50% skilled delivery in the control group. However, it should be noted that this intervention entailed very regular follow-up messages in conjunction with mobile phone vouchers enabling beneficiaries to contact health workers over the entire period of pregnancy and postpartum care.

Pregnant women attending antenatal care who received a standard voucher and SMS reminder in Nairobi, Kenya were found to have an increased probability of reporting utilization of a modern family planning method compared to the control of no voucher/no reminder in a limited pilot study (McConnell et al. 2018). In the medium-term, 58% of the control group participants reported using family planning. In comparison, those receiving a standard voucher with SMS were estimated to be 25 percentage points higher than the control arm. Voucher redemption rates (measuring behavior, rather than self-report) were 20% among those receiving a voucher.

Another study evaluating the effects of SMS encouragement on family planning uptake amongst women with unmet need in Western Kenya relied on a very small sample size of 112 women (Green et al. 2018). Given high attrition, the actual effect estimates are noisy and largely uninformative. In that study, only 1.8% of the control group (1/56) reported taking up family planning, compared to 33.9% of the treatment group receiving SMS encouragement (19/56).

Finally, one other relevant paper analyzed the effect of SMS reminders for a follow-up appointment after male circumcision in South Africa; messages were sent daily during the week between the procedure and the scheduled follow-up, and resulted in a significant increase in attendance at the follow-up procedure. The increase in attendance at follow-up was 6 percentage points from a base rate of 59.7% in the control group (Odeny et al. 2012).

2. Objectives of the evaluation

2.1. Primary objective

The general objective of this project is to generate high-quality evidence about how to increase the effectiveness of the services provided by PSI community promoters, and pilot a strategy of RapidSMS reminders designed to increase the uptake of contraceptive referrals generated by those promoters.

2.2. Secondary objective

The study's specific objectives are as follows:

1. Implement an intervention in which SMS messages are sent to eligible, consenting parties who receive referrals for family planning;

2. Evaluate the effectiveness of these messages using a randomized controlled trial to identify whether the messages are effective in increasing family planning referral redemption rates amongst the current target population;
3. Determine the viability of the intervention to extend its application within PSI-Mozambique.

3. Study population

3.1. Population

The target population is the current beneficiary base served by PSI-Mozambique promoters, namely women of reproductive age (WRA) residing in urban areas of Nampula and Sofala. These include both current users of family planning who wish to switch methods as well as those with unmet need for family planning.

3.2. Inclusion and exclusion criteria

Eligibility criteria for the evaluation can be described as follows. Women of reproductive age over the age of 18 who agree to receive a referral from the PSI promoter and provide a mobile phone number will be offered the opportunity to enroll in the evaluation. (Women who are currently pregnant are ineligible for referrals and hence ineligible for inclusion.) Only those who provide informed written consent will be included in the evaluation

4. Study methods

4.1 Test arms and treatment conditions

This evaluation is designed as a randomized controlled trial with two arms. In the control arm, beneficiaries will receive status quo programming in line with current IFPP program protocols.

In the intervention arm, beneficiaries will receive a series of electronic SMS follow-ups reminding them to redeem their referrals or follow up with their promoter, as described in the table below.

1	24 hours	*Vai hoje ao Hospital para a tua consulta de planeamento.*	Go to the Health Facility today for your planning appointment
2	72 hours	*Apresente a sua senha no hospital e receba uma consulta de saúde/planeamento familiar.*	Show your voucher at the clinic and receive a consultation for health and family planning services
3	1 week	*Já foste à tua consulta de planeamento? A activista fará uma nova visita brevemente..*	Have you been to your planning appointment? The promoter will be visiting you again soon.
4	2 weeks	*Na próxima visita ao hospital convide uma amiga para receber os serviços de planeamento familiar*	On the next visit to the health facility, invite a friend to receive family planning services

5	3 weeks	*O Planeamento Familiar permite as mulheres planearem melhor a sua família.*	Family planning allows women to better plan their families
6	4 weeks	*Fale com a activista se tiver questões sobre a sua saúde.*	Talk to your promoter if you have questions about your health

4.2. **Randomization**
This intervention will be randomized at the individual (beneficiary) level. Randomization will be conducted twice-weekly for women who have enrolled in the evaluation following promoter visits over the preceding three days; the research manager will conduct randomization in Stata using a reproducible seed.

Immediately after the randomization is conducted, the contact information of beneficiaries assigned to the intervention arm will be provided to the vendor delivering SMS messages, and messaging will commence the following day. Each randomization cohort of beneficiaries (both treatment and control) will be carefully tracked to facilitate analysis of relevant outcomes.

4.3. **Sample Size**
Promoters reach around 12,500 beneficiaries monthly; around 130 promoters are employed in this program at any given time, though the number can fluctuate due to promoter attrition. (This estimate and all subsequent estimates cited here are based on administrative data about the current progress of IFPP programming.)

Based on data from the last 6 months (June-Nov 2019), there were 867 referrals with phone numbers each month on average. Assuming that 85% of women also provide consent for the evaluation, we estimate that around 740 women will be enrolled in the evaluation each month. We plan on seven months of data collection, yielding a total sample of 5,180 women.

4.4 Power
Given a sample size of 5,300 and a baseline redemption rate for referrals of 50%, the evaluation can detect an increase in the redemption rate of about 3.8 percentage points.

5. Data collection and management

The primary source of data will be collected via the Connecting with Sara (CwS) application by promoters and nurses tracking referrals and redemption rates, respectively. The CwS platform is used by promoters and nurses in this capacity already as a core part of the IFPP program. As such, this research evaluates a new intervention using existing outcome data.

Data is subsequently stored in the District Health Information System (DHIS2) and is accessed via Power BI, a Microsoft business analytics tool. The information from individuals who do not provide consent to be part of the study and are not issued a referral will still be recorded within the CwS app per standard data collection practices conducted by the organization. However, the PI team will not have access to this data; data access and analysis will pertain only to the sample that provided consent.

5.1. Data Collection Instruments

The primary source of data will be data collected on the CwS application as loaded to promoter and nurse mobile phones. The app is already used in this capacity as a core part of PSI's IFPP program. The key data fields collected to be used in this analysis include:

Data Field Name	Description
Marieta - ID (non-unique)	Beneficiary identification code based on location and birth order
Date	Date and time of transaction recorded; this then is used to calculate the time between when a beneficiary is issued a family planning voucher and when she redeems it with a nurse
Longitude	Longitude coordinate as recorded at the time of data upload by the GIS functionality of the phone being utilized
Latitude	Latitude coordinate as recorded at the time of data upload by the GIS functionality of the phone being utilized
Provider – New or Continuing Users	Categorizes beneficiaries who redeem referrals as a continuing user, method switcher, or new user as recorded by a nurse
Phone Ownership	Phone ownership as described by the beneficiary at the time of entering the phone number (i.e. owned, shared with partner, none, etc.)
Actor Type	Role of the individual uploading the information (i.e. promoter or nurse)
Marieta - Age	Age range of the beneficiary in five-year increments
Geography – Province	Province identifier differentiating between Sofala and Nampula
Transaction Type – Acronym	Session type as categorized by: IFPP promoter session with referral, IFPP promoter session without referral, reminder voucher issue by the IFPP promoter, or, nurse recorded redemption of IFPP voucher
CwS – FPL – Service received	Type of method issued by the nurse (i.e. pill, implant, injection – depo, counseling)
Program	Classifies each interaction by program type (i.e. IFPP, Nurse, Tem+, etc.) – we are interested in FPL-IFPP for referral issues and Nurse for nurse redemptions

In addition, beneficiary phone numbers will be used to merge the datasets from enrollment and randomization (in which beneficiaries are identified using their phone numbers) to the outcome data in the CwS app; the latter data similarly reports beneficiary phone number. Following the completion of this merge process, an anonymized version of the dataset excluding all phone

numbers will be saved and utilized for analysis. No other personally identifiable information will be accessed for the purposes of this evaluation.

7. Results and Dissemination

The results of this project will include:

- High-quality, robust evidence about the effectiveness of SMS messaging to increase promoter effectiveness;
- Additional evidence about promoter-facing methods to increase promoter effectiveness;
- An example process of how to overlay variations of program components on top of existing programming, where the variations aim to increase promoter efficiency, and are introduced randomly;
- Publication package to include an abstract, webpage hosted by OES, and slides where the audience is the general public, USAID Missions, PSI and international organizations like it, and especially the government of Mozambique; and
- Draft manuscript for submission to an academic journal.

8. Ethical Considerations

Recruitment
There is no specific recruitment for this study; rather, the intervention will be incorporated as a part of the existing IFPP program procedures in which promoters meet with beneficiaries and issue referrals. The intervention is only delivered to women who agree to receive a referral from the promoter, provide a cell phone number, and consent to enroll in the evaluation.

Benefits
Participants will not receive any direct benefits from participating in this research. The intervention is designed to increase family planning referral redemption at local clinics where such services are provided for no monetary cost. Redeeming a referral at a clinic facilitates contraceptive counseling as well as family planning uptake among women who are either interested in switching methods or have an unmet need for family planning.

Risks and Mitigation
Phones may be shared (or outright owned) by spouses or partners, and so mobile SMS messages may be read by other parties. As a result, there is the potential for stigmatization or retaliation. Ultimately, this risk is reasonable in relation to the benefits given that the intervention adds SMS encouragement messages to the standard operating procedures of IFPP as conducted by PSI-Mozambique. Nevertheless, to mitigate this risk, beneficiaries must consent to receive messages to be eligible to participate. Message content has been designed to encourage beneficiaries to visit health professionals while also mitigating social risks based on PSI's piloting. Beneficiaries also will be able to discuss any questions they have about the SMS messages and potential risks therein with the promoters; promoters can follow-up with the beneficiaries directly should there be any concerns.

Informed Consent
During the data collection phase, all eligible women will provide informed consent for enrollment in the evaluation. The consent process will be administered by promoters. The consent form provides the following information: study objectives and procedures, risks and benefits of study participation, strategies used by researchers to minimize risks, costs associated with the study, the voluntary nature of the study, the participant's right to refuse to answer questions or leave the study, and contact information of staff.

All health promoters will be carefully trained on the consent process and the importance of the voluntary nature of participation. The consent form has been written in language that is easily understandable to participants as well as promoters.

For respondents who provide consent, the physical consent form will be collected by the promoters' supervisors and retained for the duration of the evaluation; digital images of the consent forms will also be recorded.

Compensation
No additional compensation will be offered to beneficiaries for participating in the research.

Data Management and Privacy Protection
The study will not access any identifiable data for beneficiaries other than the phone number and longitude/latitude of the location where the session was conducted, as noted above. In addition, data on phone numbers will not be included in the dataset used for analysis following the completion of the merge. In the Connecting with Sarah application, no beneficiary names are recorded; instead, a code is assigned based on location and birth order. All data is collected via the CwS application and stored via the DHIS2 per standard operating procedures. This affords electronic maintenance of records in the cloud rather than reliance upon paper records. No data collected in the course of the study is considered as sensitive in nature.

Consent forms provided by the respondents include their name and signature (or in the case of illiterate respondents, a thumbprint). The thumbprint is obtained by the staff member administering the consent form following completion of the consent process and if the respondent indicates she cannot sign her own name (the thumb is dipped in ink and pressed onto the page).

Consent forms are stored under lock and key in the PSI office and will be stored there until one year after the completion of data analysis and publication; they are accessible only to field research assistants. The digital versions are similarly stored in a password-protected folder that is only available to field research assistants and the principal investigators. Thumb prints are not used for any purpose of analysis, matching, etc., but solely to document consent for the illiterate respondents. Given that no follow-up is planned for this study, the consent forms (both digital and hard copy) will be destroyed one year following the completion of analysis and publication.

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