Title: Reaching Wide Populations with a Family Planning App: Testing Distribution Channels for the CycleBeads App

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SHORT ABSTRACT (150 Words)

Smart phone use is expanding across the world, including in developing countries, creating a cost-effective avenue to reach large populations with family planning (FP) information, and knowledge-based FP fertility awareness methods. Cycle Technologies developed CycleBeads®, a smartphone app which facilitates use of the Standard Days Method® (SDM) of FP. The Institute for Reproductive Health at Georgetown University partnered with a Kenyan research agency, iHub Research, to refine and test the app over a three-phased research process in Nairobi. In Phase I, user testing identified the smartphone app as an appropriate approach for Kenyan audiences. In Phase II, users engaged with the app over 30 days to ensure its functionality and usability. In Phase III, two pilot distribution channels (a digital campaign and community-run NGO) offered CycleBeads; analysis examined how method of distribution impacts uptake, correct understanding and use of the app. This paper features results from all three phases.
EXTENDED ABSTRACT

Significance/background
Smartphone use is growing rapidly across the developing world, creating a new avenue to reach large populations with family planning (FP) information. In 2013, there were 1.3 billion smartphone users worldwide, and there are projected to be nearly 2 billion by the end of 2015, and over 2.5 billion in 2018 (eMarketer). Evidence from the M4RH project (an initiative led by FHI 360 to provide information about FP methods via mobile phone) in Kenya and Tanzania suggests that mobile phones are a powerful and effective way to reach large audiences with FP info. In the next decade, smartphone apps could be a crucial, low cost and effective tool to provide unprecedentedly large populations with reproductive health information and options.

In Kenya, national surveys show that 6.8% of women in the highest wealth quintiles, and 7.7% of women who have completed secondary education are not using modern methods consistently and may rely on traditional methods instead (DHS 2009). In addition, when choosing from multiple FP methods, many Kenyans may prefer non-hormonal, side-effect-free methods. Fertility awareness methods, which help a woman identify the fertile days of her menstrual cycle so she can use a barrier method or not have sex on those days, can address these preferences. Expanding access to fertility awareness methods such as the Standard Days Method® (SDM) could be key to reducing unmet need and increasing contraceptive prevalence in Kenya.

Since the rise of mobile phones and concern for side-effects are two widespread trends throughout sub-Saharan Africa, there is a significant global market and potential for offering non-hormonal, knowledge-based fertility awareness FP via mobile phones. The Institute for Reproductive Health at Georgetown University (IRH) and commercial partner, Cycle Technologies, developed a suite of tools to facilitate the use of the SDM, including CycleTel, an SMS-based platform, The CycleBeads smartphone app, and CycleBeads Online, a web-based platform.

With the rise of smartphones, a growing number of apps can help people manage their health. However, there is limited research on the usage and impact of these apps (Bert et al. 2014). After establishing that the CycleBeads app was an appropriate tool for Kenyan audiences, this research evaluated different channels of distribution (including community outreach and a digital media campaign) to assess how user experience varied by distribution and which channels were most successful in reaching new users. The study also examined demographic characteristics of users reached in each channel and assessed what drew them to the app.

IRH conducted three phases of research: (1) identified the most appropriate and user-friendly platform, (2) refined and tested the platform, and (3) offered it to users through various distribution channels. Nairobi, Kenya was selected as the research site due to smartphone and internet availability and high unmet need for FP (15.1%) (DHS 2009).

Product Tested
IRH and Cycle Technologies created a suite of tools to facilitate use of SDM. All of these tools can be used for pregnancy prevention, pregnancy planning, or simply period tracking:

- CycleTel: An SMS service, which sends a woman text messages on days she is most likely to become pregnant.
- CycleBeads app: A free app for smartphones, which provides women with a visual guide to her fertile days, available on the Google Play or iOS store
- CycleBeads Online: A web-based platform, which provides a woman with a visual guide to her fertile days through a log-in website

After Phase 1 of testing in Nairobi, research focused primarily on the CycleBeads app. When first opened, the app takes the user through a screening process, where she learns basic information about SDM and can assess whether she is eligible to use the method. The user is then prompted to enter her period start date, and the app calculates her fertile and infertile days, without the need to access the internet. After she enters her period start date, the user can see her fertile days via one of two visual representations. One setting shows a calendar view of fertile days, and the other shows a set of beads, each one representing an infertile or fertile day of a woman’s cycle. The user can access more information about the method from “about” or “directions” sections, obtain help via a local Kenyan helpline, or a direct e-mail to Cycle Technologies. The user receives a notification on her phone when she is entering her fertile window, and can customize when she would like to receive such notifications.

Methodology
Phase 1: User-centered design testing (June-July 2014). This initial phase of research relied on direct observations in iHub’s user experience lab, as well as in-depth interviews and focus groups with 70 women to assess the acceptability and appeal of the CycleBeads app, CycleTel service and CycleBeads Online. The women’s experiences were recorded in June 2014, and data was analyzed in July 2014.
Phase 2: Functionality and Comprehension Testing (October-December 2014). In this phase, 35 women engaged with the CycleBeads app for 30 days, keeping a diary of their interactions and participating in three interviews and a focus group discussion.

Phase 3: Comparative testing of three distribution models (May-September 2015). In this phase, two primary distribution channels—a local NGO, AfriAfya, and a social media campaign—distributed the app for actual use. During analysis, a third important channel—friends and family—emerged. The study team collected data about how these modes of distribution affect uptake, retention, correct understanding and correct use of SDM. Over a three-month period, 185 participants completed monthly surveys. In addition, 24 users participated in in-depth interviews in which they shared details about their experience learning about and using the app. Data analysis identified patterns and trends of user experience by the distribution channels. Cycle Technologies also collected aggregate data on app continuation rates.

Between each research phase, the app was modified according to user feedback.

Results/key findings
Each phase of research yielded unique insights into how women use mobile tools and engage with FP knowledge and methods.

Phase I showed that potential users found the CycleBeads app to be easy to use and visually appealing. They preferred it to the other mobile products. In addition, we found no substantial differences in experience using the CycleBeads app between socio-economic groups. Participants had some difficulties understanding eligibility criteria for use, therefore, a clear screening processes was added to the app before the second phase.

Phase II demonstrated that the CycleBeads app was usable, and the information presented was clear. Following women as they engaged with the app (without actually using it for FP) over 30 days brought up issues that might occur in actual use, including partner communication. It revealed that women were motivated by previous negative experience with other FP methods and interested in using their phone as a source of FP information. The participants were enthusiastic about the product and suggested ways to offer it to a broader Kenyan audience.

Phase III research yielded the most multi-faceted data. Throughout the enrollment period of the study, from May to June 2015, 2,570 individuals downloaded the app, 2,115 of whom accessed it through Facebook. Of those, 185 were recruited as research participants.

Who are the participants?
Participants were distributed across age, income levels, and purpose of use. However, most were of higher socio-economic class, as expected for smartphone users in the capital city. Most had a monthly income between 10,000-40,000 Kenyan Shillings ($96-$386) and at least secondary education (75%). Many (50%) had university education or higher.

Among the 185 users who enrolled in the study, reason for use varied by age. Younger users in the 18-25 age bracket (n=129) were significantly more likely to use the app for cycle tracking (69%) than for pregnancy prevention (27%) or pregnancy planning (4%). In the 26-35 age group (n=44), more women used the app to prevent pregnancies (57%), with a sizable portion still using to track their cycles (23%). In the 36-45 age group (n=12), pregnancy prevention was the most popular reason for use (75%), though several women in this age group also used it to plan a pregnancy (17%).
All of the distribution channels seem well positioned to reach women who were not using FP prior to CycleBeads. 43% of participants who used the app to prevent pregnancy were new users of FP. For participants who had used FP before, condoms were the most popular method of FP, used by 61%. The most commonly cited reasons for choosing the CycleBeads app as a FP method were concerns about side effects from other methods (60%), and the view that the CycleBeads app is simple or easy to use (58%).

Knowledge:
Across distribution channels, women reported that completing the initial screening process was easy. The few users who reported that the screening process was “difficult” had heard about the app through friends or family members. User knowledge, which was defined as knowledge of when the fertile days are and how to manage them to prevent pregnancy, was measured and scored at each survey. At baseline, only 57% of women preventing pregnancy answered all questions correctly. By midline, that percentage had gone to 87%, indicating that women learned as they used the app. By the endline survey, 91% were able to correctly identify fertile days.

There was not a statistically significant association between distribution channel and knowledge of app use at baseline, including knowledge about when fertile days are and knowing appropriate strategies to manage these fertile days. Two variables were significantly associated with higher odds of correct knowledge.

- Participants who learned about the app from AfriAfya had 24.1 times higher odds of having correct knowledge compared with those who learned about the app through family and friends.
- Participants with a university or postgraduate education had 42.4 times higher odds of having correct knowledge compared with individuals with a secondary education or lower.

Correct Use:
Despite their higher knowledge scores at baseline, participants who attended AfriAfya meetings were less likely to have taken the key step of entering their period date at the time of the first interview than participants who learned about the app from digital media or friends and family. This finding may suggest that, while meetings are a good way to convey information, people who find the app on Facebook or download the app after a conversation with a friend may be more motivated to use it. Further research is needed to explore this finding.

In general, participants were able to correctly understand SDM, and most were using it correctly. By the endline survey, 92% of participants reported that they had not had unprotected sex on a fertile day. However, only 63% reported abstaining or using condoms on fertile days; the remainder may have used EC or withdrawal, methods that are not recommended for use with SDM. This suggests that more education may be necessary to ensure correct use. Data suggests that the CycleBeads app is well positioned to reach women with unmet need – 43% of women using the app to prevent pregnancy were new to FP. Few significant behavioral differences were found between users who learned about the app from different distribution channels.
Figure 3 shows what women plan to do to manage their unsafe days when pregnancy is likely. Among women who used the app to prevent pregnancy, abstinence (72%) and condoms (93%) were the most popular methods of unsafe day management. There was a statistically significant association between distribution channel and planning to use EC on fertile days; participants who learned about the app from family or friends were more likely to say they planned to use EC on fertile days.

The majority of participants in relationships (80%) spoke to their partners about their use of the app, a key factor to correct use.

Satisfaction and continuation: 99% of participants said that they had recommended the app to someone else, indicating high satisfaction with the CycleBeads app. Of the 69 individuals who said they were using the app to prevent pregnancy at baseline, 48% were still using the app to prevent pregnancy at 90 days. 16% were still using the app, but had switched to planning pregnancy (9%) or tracking their periods (7%). The remainder were lost to follow up (17%) or discontinued use of the app (19%). Similar rates were seen across participants: of the 185 participants, 12% were lost to follow up and 26% discontinued use of the app.

Program Implications and Lessons
In Nairobi, there appears to be a potential market of women interested in using the CycleBeads app for pregnancy planning, pregnancy prevention or cycle tracking. Our sample suggests that these women may be from varied income levels, but generally have a higher educational background. Our data also suggests that, in general, women are able to understand this app and correctly use it.

In further work, this project will be scaled up to other parts of Kenya. Modifications will be made to both the Facebook campaign, and the community outreach, to correct issues which came up in this pilot project. Users will be reminded, for instance, to teach responsibly if they do tell their friends about the app.

The three phases of this study establish a replicable, iterative process that can be applied to increase the likelihood of reaching intended audiences with a product they like, want, and can use. Direct observation, user diaries, in-depth interviews, focus groups, and use tracking all provide important insights. Insights from this project can be used to facilitate the roll-out of other mHealth products, particularly in developing country settings, and particularly those intended to support FP.

The sample size from this study was based on users who enrolled in pilot distribution efforts; thus, it is not possible to reach statistical conclusions that are representative of the entire Kenyan population. However, data does offer insights and suggest hypothesis to be tested in further research. While testing and possible adaptation in other settings will be needed, the new version of the app is a step toward adding SDM to the method mix and reducing unmet need for FP.

Works cited

