

Can Mobile Phone Surveys Replace House-To-House Data Collection?

Using interactive voice recognition to assess media exposure and behaviors

Ghana, like most lower middle income countries, is seeing rising mobile phone ownership with penetration into all demographic groups—but especially among younger populations. Eighty percent of adult Ghanaians own a mobile phone,¹ and there are 138 sim cards per 100 people in the country (or more sim cards than citizens).² Data from a number of African countries indicate that, as mobile phone access increases, data obtained from surveys conducted entirely through mobile phones are more closely approximating data obtained through face-to-face household surveys.³

Communicate for Health took advantage of these facts to test innovative strategies to collect information about media exposure and priority health behaviors directly from project beneficiaries. This alternative was especially important to the

project because of the resource- and time-intensive nature of household surveys. Cost-conscious USAID projects must be careful to streamline their evaluation efforts; and Communicate for Health was specifically asked not to conduct household surveys.

The project was also fortunate to have as one of its major partners Viamo (originally VOTO Mobile)—a Ghanaian firm with expertise in state-of-the-art digital capabilities, including large-scale and automated two-way voice and SMS communication for data collection. Together, Communicate for Health and Viamo developed a survey design with three major objectives: to 1) assess trends in exposure to health communication messages among the project's three Life Stage audiences, 2) assess trends in behavioral determinants and behaviors, and 3) evaluate the feasibility and of collecting project monitoring and evaluation data via mobile phone.

¹ Pew Research Center (2018). *Internet Connectivity Seen as Having Positive Impact on Life in Sub-Saharan Africa*.

² National Communications Authority (2019). *Communications for Development*. See: <https://www.nca.org.gh/industry-data-2/market-share-statistics-2/voice-2/>

³ Leo, B., Morello, R. et al. (2015). *Do Mobile Phone Survey Work in Poor Countries?* Working Paper 398. Washington DC: Center for Global Development.



REACHING POPULATION SEGMENTS WITH TAILORED QUESTIONS

In February 17 to March 15, 2017, Viamo used their automated platform to randomly generate mobile phone numbers using the prefixes of mobile phone networks in Ghana. These numbers were dialed in sequence. When a call was picked up, the phone user received prerecorded information and question and response options to identify their region and their Life Stage cohort and help them complete the interactive voice recognition (IVR) survey. A user could take the survey in his or her preferred language (English, Twi, Ga, Ewe or Dagbani). The baseline survey established certain

demographic characteristics of respondents—such as age, education level, relationship status, where they lived, and whether they were pregnant or a parent of a young child.

The baseline aimed to reach a sample of 700 completed interviews for each of the Life Stage categories (for a total of 4,200 interviews). Data collection was halted when the female and male youth/young adult Life Stage quotas (two of the six population segments) were met. Using this methodology, 2250 phone users completed the baseline survey. The survey was designed to be given a second time to the same respondents

after nine months of project mass media broadcast. From December 2017 to February 2018 they received monthly SMS message reminders and voice messages prior to the survey.

The baseline and follow-up surveys assessed exposure to the *GoodLife* brand and health messages, specific health-related behaviors, communication with others about the messages (friend, partner, family), and intentions regarding handwashing, contraception, malaria prevention, facility delivery, breastfeeding, and complementary feeding. Additionally, the follow-up survey fielded questions on exposure to messaging on specific *GoodLife, Live it Well* health topics on family planning, malaria prevention, handwashing, and breastfeeding.

RESULTS AND REFLECTIONS

Survey completion rates

Although the surveys were designed to reach the same respondents in both waves, 31 percent of the baseline sample (707/2250) completed the follow-up IVR survey (see table 1). Youth and young adults constituted two-thirds of respondents of the total baseline sample who completed the survey. They were also most likely to complete the follow-up (34 percent of the original segment). Pregnant couples had the lowest participation at baseline (14 percent) and 29 percent of the original sample segment completed the follow-up. Caretakers represented 24 percent of the baseline but only 25 percent of the original sample segment completed follow-up.

Given the challenges presented by the completion rates for the follow-up survey, in particular, the project sought another source of information as a source of comparison for the data collected at that point in time.

Communicate for Health contracted with Ipsos Ghana Limited to add a limited number of questions to a national household omnibus survey conducted between February and March of 2018. The omnibus

Table 1.

Survey completion rates for baseline and follow-up surveys (target of 700 per segment per survey)

LIFE STAGE AUDIENCE	COMPLETES AT BASELINE (N)	COMPLETES AT FOLLOW-UP (N)
Female youth/young adults 18–35	700	240
Male youth/young adults 18–35	702	241
Females with child under 5	209	53
Male caregivers of child under 5	329	82
Pregnant women	89	24
Partners of pregnant women	221	67
Total	2250	707

survey used computer-assisted personal information (face-to-face questioning) as the main method of data collection. The questions submitted for the omnibus survey were the same as the new ones appended to the follow-up IVR survey (exposure to *GoodLife, Live it Well* health topics on family planning, malaria prevention, handwashing, and breastfeeding messaging and its influence on behavior). The omnibus survey was answered by 1,177 respondents ages 10–65 years across urban and rural communities in all ten regions. Six hundred and thirty-one of these resided in the USAID target regions (Northern, Western, Central, Greater Accra and Volta).

Table 1.

Comparison of results of self-reported exposure to health messages between follow-up IVR and Ipsos Omnibus samples (USAID priority regions)

	IVR DEC 2017–FEB 2018 (18+ YEARS) (TOTAL N= 707)*	IPSOS OMNIBUS SURVEY FEB–MAR 2018 (10–65 YEARS) (TOTAL N = 631)*	PERCENTAGE POINT DIFFERENCE BETWEEN IVR FOLLOW-UP AND IPSOS OMNIBUS
Message topic	Percent who reported exposure		
<i>GoodLife</i> brand	71	70	1
Any family planning	72	85	-13
<i>GoodLife</i> family planning	58	57	1
<i>GoodLife</i> malaria prevention	68	78	-10
<i>GoodLife</i> handwashing	72	75	-3
<i>GoodLife</i> breastfeeding*	67	65	2



SELF-REPORTED TRENDS AT BASELINE AND NINE-MONTH FOLLOW-UP

When comparing responses at baseline and follow up among only those respondents who answered both questionnaires, the trends suggested improvements in message exposure and in some self-reported behaviors within a short space of time.

Figure 1 below shows that exposure to messages about family planning increased from 58 percent of all respondents to 72 percent. Exposure to messages about handwashing increased from 65 percent to 79 percent, followed by messages about facility delivery

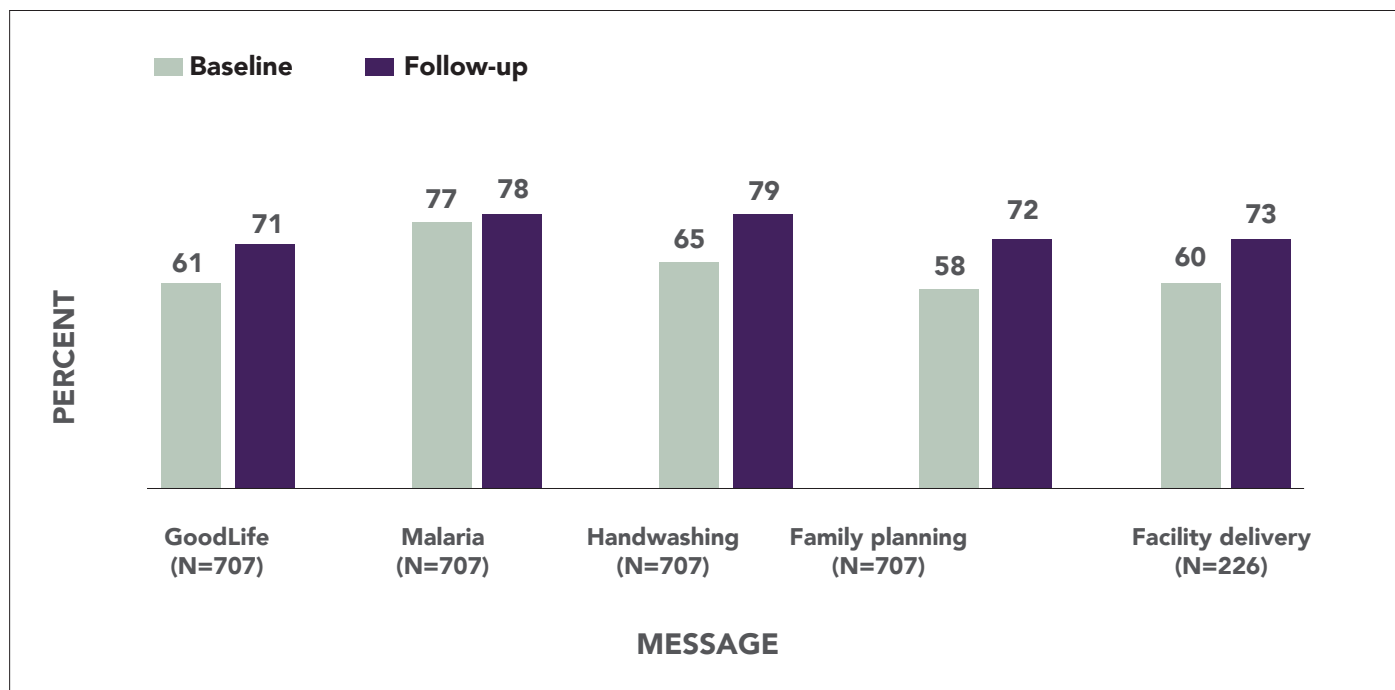
(60 percent to 73 percent). The lowest apparent change was in exposure to malaria prevention messages (77 percent to 78 percent), but exposure was already high at baseline.

The follow-up survey also suggested increases over baseline in some behaviors related to malaria prevention and handwashing (see figure 2).

A large number of caregivers with children under five reported talking to a friend, partner, or family members (“talking to others”) about children sleeping under an insecticide treated net (an increase from 46 to 59 percent). There was also

Figure 1.

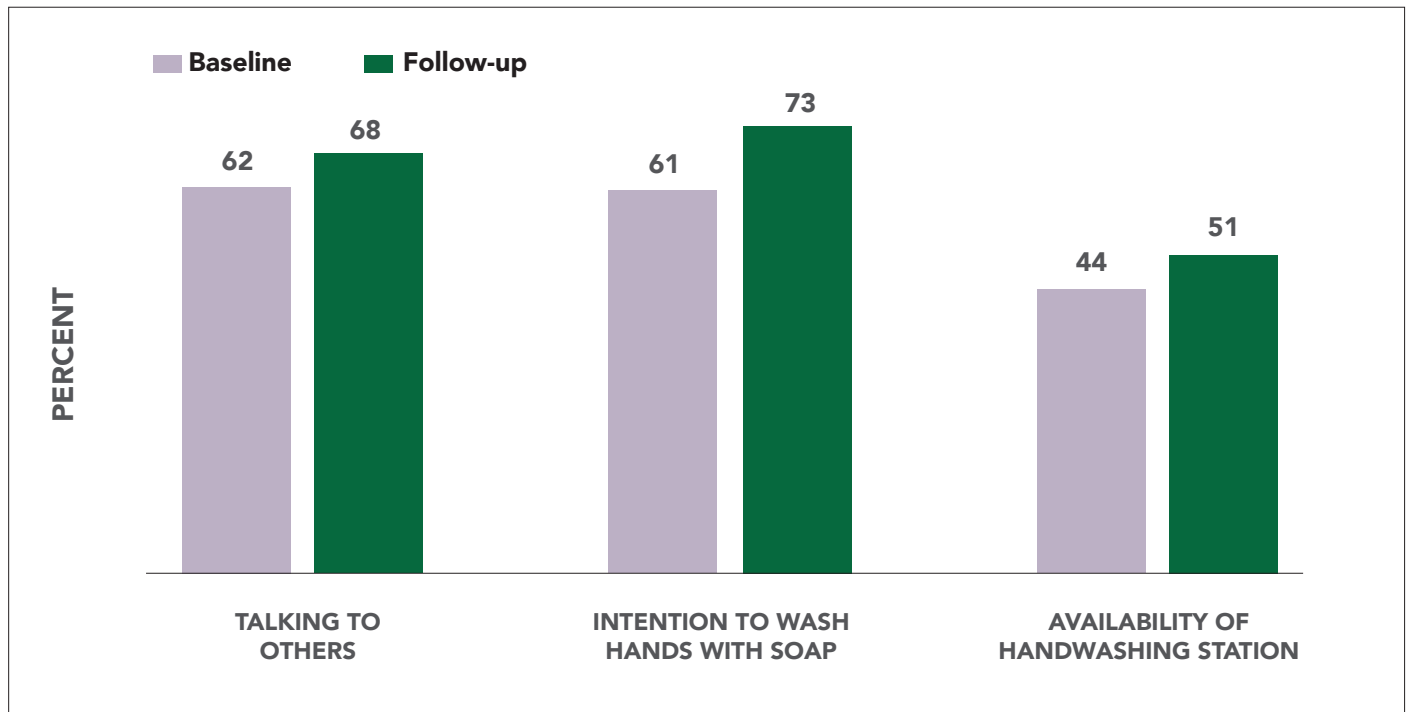
Self-reported changes in exposure to communication messages (IVR surveys)*



*All respondents were asked questions about the first four topics; questions about facility delivery were restricted to caregivers of children under five, pregnant women, and their partners.

Figure 2.

Self-reported changes in handwashing behaviors among total respondents (N=707)*



*Significance of change was not calculated due to small sample sizes.

an increase in respondents who reported talking to others about handwashing with soap under running water (from 62 to 67 percent). Reported intentions to wash hands with soap and water across rose 12 percentage points in all three life stage groups. There was a small increase in the proportion of children under five reported to have slept under an insecticide-treated bed net (from 61 to 64 percent). Reported availability of a handwashing station in the household rose considerably (from 44 to 51 percent). Among respondents who mentioned having a handwashing station, reported availability of soap and water at the stations likewise rose among female youth/young adults (from 29 to 34 percent) and male caregivers of children under five

(from 28 to 38 percent). Within this short nine-month period of programming, reported use of modern contraception and intention to use in the future both rose among sexually active women from 52 percent to 54 percent. (However, note that significance of changes between baseline and follow-up surveys was not calculated due to the small follow-up sample.)

SURVEY METHODOLOGY AND FINAL DATA POINT

As part of the research design to assess trends across project years through the recruitment a new and independent sample from each of the life stages to participate in a cross-sectional survey, Viamo conducted a final round of data of the IVR survey from July 6 to August 31, 2019. After eight weeks of data collection, a total of 1,923 Life Stage respondents completed the survey. Viamo has submitted a finalized clean dataset to the project to kick start analysis of changes over time, report writing, dissemination with stakeholders and submission of articles for publication in peer review journals.

LESSONS LEARNED

Mobile phone surveys using IVR random digit dial sampling is an alternative or supplemental data collection method for social and behavior change monitoring in low resource settings. In Ghana, Communicate for Health found that the methodology is suitable for reaching populations with high access to mobile phones, especially people 35 and younger, from urban or peri-urban areas, and males. Of all Life Stage respondents, 56 percent were males and 69 percent resided in urban communities. Pregnant couples and caregivers of children under five years were hard to reach. Alternative recruitment and data collection methods are needed for hard-to-reach demographic groups (caregivers of young children, pregnant women/couples).

The high attrition rate at 9 to 12 months among the respondents contacted at baseline proved challenging for the intended longitudinal design.

The methodology provided real time data for immediate program refinement and use. The project used real time results at baseline to embark upon intensive mass media messaging in varied formats which were placed on highly rated stations at prime time. This contributed to suggestive improvements at follow up.

