GHANA BEHAVIOR CHANGE SUPPORT (BCS) PROJECT

GOOD LIFE

live it well

Endline Survey Report
May 2014

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BCS PROJECT

JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH

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LIST OF ACRONYMS

ANC	Antenatal Care
BCS	Behavior Change Support
CB	Capacity Building
CBD	Community Based Distribution
CDS	Community Decision System
CM	Community Mobilization
CWSA	Community Water and Sanitation Agency
DHAT	District Health Advocacy Teams
DHS	Demographic and Health Survey
EA	Enumeration Areas
FP	Family Planning
BCS	Ghana Behavior Change Support
GHS	Ghana Health Service
GSS	Ghana Statistical Service
IPTp	Intermittent Preventive Treatment in Pregnancy
ITN	Insecticide Treated Nets
IYCF	Infant and young child feeding
JHU·CCP	Johns Hopkins Bloomberg School of Public Health Center for Communication Programs
LLIN	Long Lasting Insecticidal Nets
MH	Maternal Health
MHS	Maternal Health Survey
MICS	Multiple Indicator Cluster Survey
NMCP	National Malaria Control Program
SP	Sulphadoxine-Pyrimethamine
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

The Ghana Behavior Change Support Project (BCS), active from August 2009-February 2014, was funded by the United States Agency for International Development (USAID) to support behavior change and promote improved health in the Greater Accra, Western, and Central regions of Ghana. Johns Hopkins Bloomberg School of Public Health Center for Communication Programs (JHU·CCP) implemented the project and also designed a study to evaluate the impact of its efforts. This study evaluation was comprised of a Baseline survey in May 2010, an omnibus survey in 2012 and an Endline survey conducted in May 2013. A total of 1945 households and 3295 men and women participated in the Baseline survey and a total of 1942 households and 2923 men and women participated in the Endline survey. The Baseline and Endline surveys included modules on demographics, family planning, maternal and child health, hygiene, infectious diseases, community capacity and participation, and exposure to health media and health messages assessed through questions on behavior, knowledge, attitudes, and self-efficacy. Survey instruments included a Household survey, a Men's survey, and a Women's survey.

Key findings from the project evaluation include:

Reach

The Ghana BCS project campaigns achieved good reach in the community for all health focus areas. Campaigns on FP promotion and Malaria prevention received the highest exposure compared to the other health areas; 91% of all the study participants reported exposure to the project's FP campaign and 81% of participants had been exposed to the malaria prevention campaign. Nearly a third of participants (74%) had been exposed to the nutrition campaign, 70% to the GoodLife campaign, and more than half (58%) to the campaign promoting oral hydration salts and zinc (ORS/Zinc) for the treatment of childhood diarrhea.

Family Planning

- Use of modern contraception methods by all participants increased with higher levels of exposure to the BCS Life Choices FP campaign (p=0.045). 18% of participants with low levels of exposure, 20% with medium exposure, and 23% with high exposure to the campaign were using modern FP methods at the time of the Endline survey.
- Intention to use contraception also increased significantly with exposure to the Life Choices FP campaign among married and cohabiting participants (p<.001) , and among all males (p=.03), and all females (p<.001) separately.
- Knowledge of where to obtain a method of contraception increased significantly (p< .001) with exposure to the Life Choices FP campaign among married and cohabiting participants; 73% of participants with low, 80% with medium and 86% with high exposure to the campaign reported they knew where they could go to obtain a method of contraception.
- At Endline, the more commonly used modern FP methods included injectables (23%), pill (18%) and male condoms (16%). These methods increased significantly with exposure to the Life Choices campaign. In addition, there were significant decreases in the use of traditional FP methods, specifically rhythm (p= .045), and withdrawal (p<.001) among participants exposed to the campaign.
- The proportion of females reporting that it was very likely that they would discuss child-spacing or FP issues with their partner or spouse in the next year increased significantly from 27% for low exposure to 45% for high exposure (p =.009) to the Life Choices FP campaign.

- There was a significant association with exposure to the Life Choices campaign and agreement that modern FP methods were safe when used correctly (p <.001) for all participants and also among those who were married or cohabiting.

Maternal Health

- At the Baseline, 97.6% of women received ANC and at Endline this increased to 99.9% (p<.001).
- Baseline results show 67% of females compared to 70% of females at Endline started ANC in the first trimester of pregnancy (p=.094).
- At Baseline, almost two-thirds (62%) of females reported that they took iron supplements daily during their pregnancy. This increased significantly at Endline to more than three-fourths (78%, p<.001) of females.
- The proportion of females who had their children born in a government health facility increased significantly between Baseline (61%) and Endline (66%) (p=.024).
- The proportion of females who received a post-partum checkup from health personnel increased from 79% at Baseline to 87% at Endline (p<.001).

Malaria Prevention

- The mean number of nets owned per household increased significantly from 1.7 nets at Baseline to 2.1 nets at Endline (p<.001).
- 78% of the households participating in the Endline survey owned at least one LLIN compared to 60% at Baseline (p<.001).
- Net ownership was associated with exposure to the BCS "*Aha Ye De"* Malaria Campaign that promoted the use of LLINs (p<.001). Net ownership for men was 48% among those with no or low exposure to 61% for those with high exposure to the campaign.
- At Endline, significantly more participants (37%) reported sleeping under a net the previous night compared to 27% derived at Baseline (p<.001). Exposure to the Malaria campaign message '*Use Insecticide Treated Nets to prevent Malaria*' was highly significantly associated with sleeping under a net the previous night: 40% of participants who reported exposure to this message also stated that they had slept under a mosquito net the previous night compared to 35% of participants who had not been exposed to this message (p=.009).
- Frequency of children under five years of age "always" sleeping under a net increased from 32% at Baseline to 56% at Endline (p<.001). Proportion of participants who reported children in their households "never" slept under a net decreased substantially from 39% at Baseline to 10% at Endline (p<.001).
- More than half (56%) of participants who were exposed to BCS malaria campaign messages reported that the children in their households "always" slept under a net compared to 45% of participants who were not exposed to malaria campaign messages (p=.046).
- There was a marginally significant increase in the proportion of pregnant women who reported that they had slept under a net the previous night; 39% of pregnant women at Endline compared to 31% at Baseline (p=.08).

- At Endline, among women who gave birth in the last five years, significantly more women (92%) reported that they had taken any drugs to prevent malaria during their last pregnancy compared to 81% at Baseline (p<.001).
- Significantly more women (92%) who were exposed to the malaria prevention messages also took drugs to prevent malaria during their last pregnancy compared to 84% of those who were unexposed and took drugs (p=.015).

Infant and Child Health

- In the Baseline survey, over a quarter of infants (26.3%) received something other than breast milk within the first three days, compared to 17.5% of infants at Endline (p=0.001).
- There was a significant increase in the proportion of infants who were first given soft or semi-solid feeds at six months or older from 54.1% at Baseline to over two-thirds (67.8%) at Endline (p=0.001).

Water and Sanitation

- Higher proportions of participants washed their hands with soap before preparing food at Endline (9%) compared to Baseline (6%, p=0.001).
- Participants exposed to BCS programs were almost twice as likely (15.1%) to wash their hands with soap before preparing food compared with unexposed participants (8.4%, p=0.003).
- Significantly higher proportions of all participants (41.0%) exposed to BCS programs washed their hands with soap before eating compared to those unexposed to program activities (32.3%, p=0.021).
- At Endline, higher proportions of participants exposed to BCS programs used flush toilets (5.4%), flush latrines (5.4%) and public toilets (2.6%) to discard children's feces compared with Baseline values of 3.4%, 1.5% and 1.5% respectively (p>0.05).

The Endline evaluations results indicate that the Ghana BCS project made significant achievements in behavior change, specifically adoption of positive behaviors, in the areas of FP, Malaria prevention, Maternal Health, Infant Health and Nutrition and Water and Sanitation over a four year period.

INTRODUCTION

BACKGROUND

Health statistics from the 2008 Ghana Demographic and Health Survey (DHS) and 2007 Ghana Maternal Health Survey (MHS), presents a mixed picture. Though some health indicators such as exclusive breastfeeding and use of insecticide treated nets (ITN) showed progress, other indicators such as infant and under-five mortality and anemia remained largely stagnant, while others such as contraceptive use and maternal mortality worsened.

In order to address these trends, USAID/Ghana provided support to the Behavior Change Support (BCS) project to help reach its strategic objective of improving Ghana's health status, including work in the areas of family planning, maternal and child health, malaria, water, hygiene and infectious diseases. From August 2009-February 2014, JHU·CCP implemented BCS in concert with the Ghana Health Service (GHS) and Ghana Ministry of Health. The project served to maximize the contribution of behavior change communication interventions in strengthening the successes, reversing the negative trends and creating positive momentum for stagnant indicators. BCS provided behavior change support to address five of USAID's strategic objective's (SO7) intermediate results (IRs) including: IR1: MNCH/FP, IR2: Malaria, IR3: HIV/AIDS, IR4 Water & other, and IR5: Management & Systems (as it relates to capacity for BCC).

BCS is a unique initiative of USAID, representing a substantial investment in a wholly behavior change program; concentrating efforts in three regions to maximize impact; coupling the initiative with service delivery improvement project to ensure both supply and demand; and placing extensive investment at the community and family level, where behaviors and norms are formed. The primary focus is on households with children and youth, and the communities they live in, the providers they go to and the district and national leaders that impact them. The project employs the Communication for Social Change Model (see Figure 1). This aims to blend community, interpersonal and mass media approaches building synergy around three strategic elements or engines.

The BCS project included the following components:

- Addressing a wide spectrum of health topics simultaneously through an integrated approach (the GoodLife), BCS created an educational and entertaining programs/series over the duration of the project.
- Utilizing BCC campaigns focused on one or two specific health issues at a time with high intensity and limited duration.
- Working closely with regional, district, & sub-district health teams to build and strengthen the network of local NGOs to undertake effective and synergized community mobilization in both rural and urban settings.

BCS Project Objectives

The overall purpose of the project was to support the GHS at the national, regional and district levels in its efforts to achieve its health and health-related millennium development goals through sustained and coherent behavior change communication interventions and community mobilization activities aimed at creating and strengthening social norms around positive health thinking and health behavior in three focus Regions in Ghana: Greater Accra, Western, and Central.

The BCS project aimed to achieve the following broad outcomes:

1. Access, quality and use of Family Planning increased;
2. Coverage and use of key malaria interventions increased;
3. Improvement in Maternal, Neonatal and Child Health;
4. Water and sanitation improved and infectious diseases decreased; and
5. Improvement in Child Nutrition.

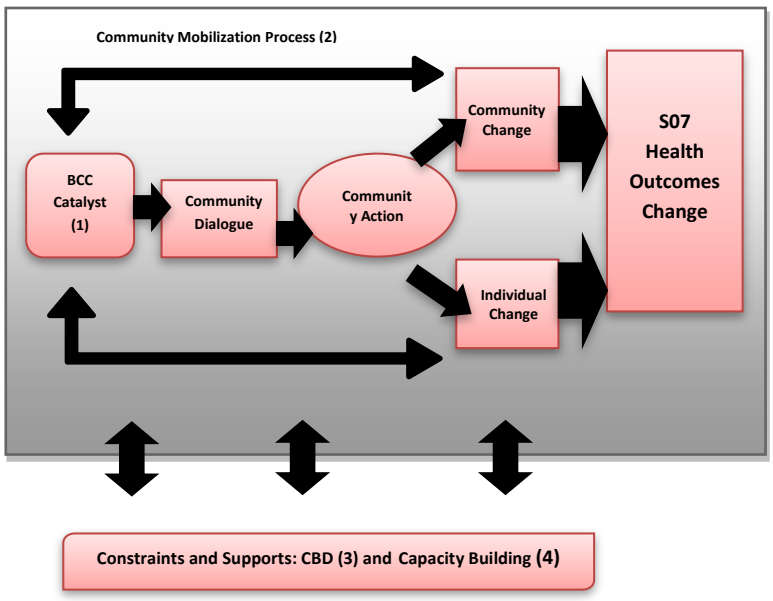
Conceptual Framework

In Ghana, many individual behaviors are strongly influenced by the social context of households and communities. Health behaviors are more likely to change if interventions involve and are reinforced by social groups, households and neighborhoods rather than just individuals. The BCS Project employs the Communication for Social Change Model (see Figure 1), blending community, interpersonal, and mass media approaches to integrate the four program elements:

- Behavior change communication (BCC);
- Community mobilization (CM);
- Community-based distribution (CBD); and
- Capacity-building (CB).

This framework provided a model for addressing both social context and individual behaviors, and explained the relationship between external interventions and community-initiated approaches. In this model, social change starts with a catalyst- the BCC activities. The role of this catalyst is to spark and accelerate the dialogue and action process within a community. In turn, this leads to community action which results in both individual and community change. Over time, these become new health behaviors and improved outcomes. The model also acknowledges that the catalyst has a direct impact on intermediate behaviors and outcomes, outside of the community mobilization process.

Figure 1: Conceptual Framework for Behavior Change Support Project

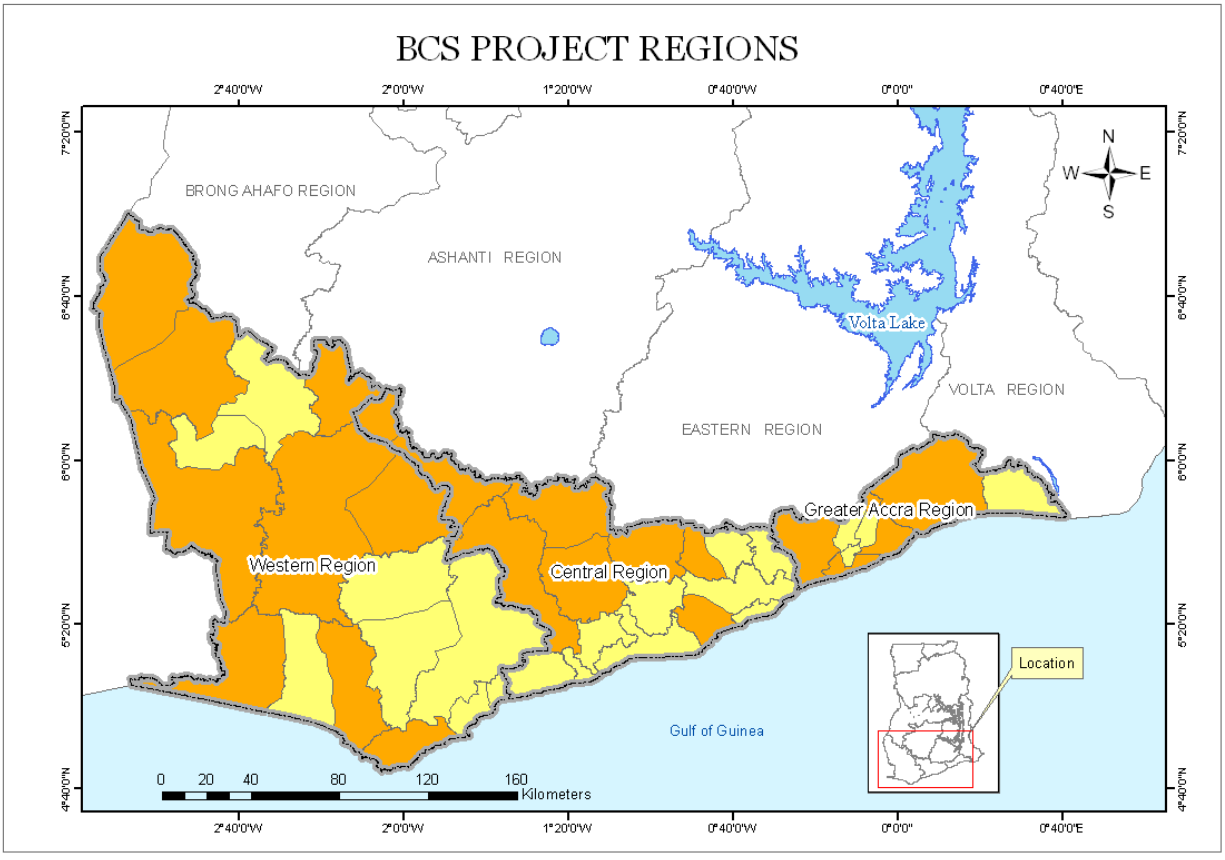


BCS Project Setting

The BCS Project used two main approaches to reach the target audience. These include mass media and community mobilization. The mass media targeted residents in all ten regions of the country with more than 120 video and radio spots and documentaries produced in English and up to eight Ghanaian languages that collectively aired more than 100,000 times.

The community mobilization approach, however, targeted audience in the three focus regions. These are Western, Central and Greater Accra Regions as shown on Figure 2. During the first year of implementation, the project selected 636 communities in 20 Districts (shaded yellow on the map) to benefit from the community mobilization activities. Some 964 community mobilizers were also trained to carry out education on all the thematic areas in these communities. The number of communities was increased in the second year to 1,579 to cover all 50 Districts[1] in the three focus regions. Additional community mobilizers were therefore trained increasing the number of mobilizers to 1,957 who have continued the community education in the three regions for the remaining part of the project's life.

Figure 2: Ghana Behavior Change Support Project Regions



[1] The shaded area on the map is the coverage of the three focus region. Yellowish shaded portions are the initial 20 Districts selected to benefit from community mobilization in the first year while brownish shaded Districts are the additional districts selected in the second year of project implementation.

BCS Project Activities

1. Behavior change communication:

BCS engaged Ghanaians through a broad ***GoodLife*** platform, tying together all the BCC interventions to address multiple, integrated health topics. Through the use of innovative, entertaining and educational mass media including a televised game show and a reality-based radio magazine that highlighted community initiatives; cell phone partnerships and strategies; community outreach toolkits and health cards; and a wide variety of traditional media, the Ghanaian community was encouraged to examine their *GoodLife* in relationship to "good health". The BCS project worked with GHS on multiple national media campaigns, all linked to *GoodLife*. Activities included:

- ***"Life Choices"***: This family planning BCC campaign was re-launched and updated, as it was already popular and well known nationally.
- **GoodLife TV Game Show:** The GoodLife Game Show is an anchor that links all the thematic areas of the project together; through it all the salient aspects of all the campaigns are woven together into a 13 weeks TV game show. GoodLife game show is a half an hour program and each week's episode features one health topic. The GoodLife game show was broadcast for four seasons.
- **GoodLife Quiz:** These educational TV spots are laced with GoodLife brand promotion. During the first part of each week information on health issues is provided to viewers. During the end of the week questions related to the information are asked and viewers can SMS or text in their answers to a short code for the opportunity to win GoodLife souvenirs.
- The ***"Aha Ye De"*** ("It is good here under the net") Malaria Campaign was implemented with the National Malaria Control Programme (NMCP) and used pop culture to accelerate the creation of a "net culture" in Ghana.
- The BCS built on the GHS Nutrition Unit's ***"Grow. Glow. Go"*** slogan and created a campaign using animated Super-Heroes to represent the combined "powers" of the food groups as well as breastfeeding.
- BCS re-broadcasted the Community Water and Sanitation Agency (CWSA) hand washing public service announcements and advertisements to facilitate BCC on water, sanitation and hygiene.
- With the assistance of the SHOPS project and GHS, the BCS campaign introduced zinc tablets for the treatment of childhood diarrhea in combination with ORS. This initiative stimulated and sustained demand for zinc products in Ghana and has had such quick success it is already being used as a model for other countries.
- **Web and Cell Phone Activities:** As a compliment to other mass media and community activities, the BCS project developed various web based, social media and cell phone platforms to extend the GoodLife platform and the specific campaign themes. During implementation of BCS, a project website housed information and links to materials from each of the thematic health areas. BCS and GoodLife also sent tweets about program activities including regional activities such as community activations and press activities. In addition, viewers of the GoodLife Game Show could text in answers to the weekly viewers' questions on the Game Show to win GoodLife souvenirs.

2. Community mobilization:

With the aim of creating a social movement, BCS also developed a powerful community mobilization methodology, Community *Dialogue and Action*, to ensure participation of a broad coalition of mobilizers, and

effect measurable changes in health indicators. Working with community health committees by boosting community empowerment and social cohesion, the mobilization activities aimed at enhancing individual participation, collective efficacy and community action to identify priority health needs for their area and develop systems to manage health including tracking systems for diarrhea and malaria. Community health mobilizers were trained and given health promotion materials to increase awareness of health communication campaign messages, stimulate discussions about the issues, and reinforce the key points of campaigns and desired behavior change. The project mobilized over 1500 communities, visiting various houses, schools, churches, community gatherings educating community members using the integrated materials.

Region specific campaigns gave each Regional Directorate of Health Services the opportunity to address a priority thematic area in their region. The RDHS led these initiatives with technical and limited financial support from BCS.

- Western Region: Expanding the establishment of Pregnancy Schools
- Greater Accra: Improve community ownership of blood donation
- Central Region: Reducing Teenage Pregnancy.

The project also introduced the District Health Advocacy Teams (DHAT) as well as the Community Decision System (CDS) approach to strengthen district and community engagement and ownership of initiatives.

District Health Advocacy Teams were multi-sectorial teams committed to supporting effective health service delivery in the district. Membership was drawn from public, private and non-governmental institutions in the district. Key among these were the district assembly, decentralized departments, traditional council of chiefs and queen mothers, religious institutions, private companies and the media. The team was tasked with the responsibility of influencing decisions affecting the development, planning, implementation and coordination of various health programs in the district.

Community Decision System was a system designed to offer information about an individual community's health status to its members to enable them take appropriate actions. It was a tool that enables communities to fully participate in health care planning and service delivery. It involved community members, individuals and groups, working with health providers and NGOs using health information from the community to analyze, decide, plan, implement, monitor and evaluate activities for the improvement of the health of the community.

3. Community-Based Distribution

BCS formed partnerships with organizations and grants were awarded to reputable organizations and distribution networks for zinc tablets, ORS sachets, Aquatabs, Vitamin A tablets were developed. BCS created demand around the use and sales of Aquatabs through its community volunteers, and partnered with Precision Dx to open up this network of volunteers to them for the sale and distribution of Aquatabs.

4. Systems Strengthening and Capacity Building

Working closely with regional, district, and sub-district health teams, BCS's Capacity Building initiatives emphasized institution-building and skills-building at the national, regional and district levels, private sector partnerships, on-the-job mentorship, and distance learning. A curriculum was created and orientation activities conducted for Regional and District Health Promotion Officers. Staff was trained in Leadership and Strategic Health Communication (LSHC). Capacity strengthening was conducted among 20 local NGOs- including project coordinators and field officers; leaders and members of organized groups.

BCS PROJECT EVALUATION

The BCS project evaluation utilized cross sectional studies to ascertain Baseline and Endline levels of behaviors, predictors of behavior change, and exposure to project activities in order to assess how these factors were altered during the life of the BCS project.

The study modules pertained to BCS's topic areas for behavior change, which include:

- Family planning
- Maternal, neonatal and child health
- Malaria
- Hygiene and infectious diseases

The principal objectives of the evaluation were to: (1) provide measures of behavior, knowledge, attitudes, and exposure to messages and activities in relation to our topic areas; and (2) as much as possible, attribute changes in behavior, knowledge and attitudes to exposure to BCS project activities.

The study evaluation comprised of a Baseline survey in 2010, a national omnibus survey in 2012 and an Endline survey which was conducted in 2013. A total of 3295 participants from 1945 households were interviewed during the baseline survey, 2001 participants from project and non-project regions were enrolled in the omnibus survey while 1942 households and 2923 participants were interviewed at the Endline survey. The surveys included modules on demographics, family planning, maternal and child health, hygiene, infectious diseases, individual and community capacity / participation, and exposure to health media and health messages, assessed through questions on behavior, knowledge, attitudes, and self-efficacy.

The Baseline survey served to provide Baseline health behavior indicators, while the national omnibus survey was conducted to inform project activities and also as part of a mid-line evaluation. The purpose of the Endline survey was to evaluate the reach and impact of the BCS project. The Endline survey also included a community capacity component to examine community as well as individual level factors as catalysts of behavior change at both the individual and community levels.

Study Methodology

The Baseline and Endline evaluation employed a cross sectional design involving the collection of data from participants within the study regions, enumeration areas (EA), communities and households for the Baseline assessment in 2009 as well as for the Endline assessment in 2013.

Sampling design

The sample breakdown was based on the 2000 Population & Housing Census compiled by the Ghana Statistical Service (GSS). The universe for this sample is the 1,402,532 households living in urban and rural areas of the Greater Accra, Central, and Western regions. By GSS definition, rural areas are settlements with population sizes less than 5000 persons, while those with 5, 000 or more residents are considered urban.

The sample consisted of 650 households in each of the three regions. This sample size allowed us to detect changes of ±7 per cent or smaller at follow-up with statistical significance on most key indicators by region and by differentiating between urban and rural locations. It also enabled us to compare changes in areas where community mobilization occurred with locations where they did not. To ensure a representative sample of respondents, a multi-stage stratified sampling procedure was used to select the households / respondents. This

included: Stratification of sample (by locality); Selection of sampling points; Selection of households and Selection of respondent within the households.

Questionnaires

Three questionnaires were used for the Baseline and Endline survey: A household questionnaire; a women's questionnaire; and a men's questionnaire. These instruments were approved by the Institutional Review Boards at Johns Hopkins Bloomberg School of Public Health and the University of Ghana (Baseline) and the Council for Science and Industrial Research, Ghana (Endline) and pre-tested prior to the Baseline survey in 2010. Revisions were made to the Endline survey to incorporate questions on exposure to BCS project activities. The questionnaires were available in Akan and Ga which are the main local dialects spoken in the study Regions.

Field team

For both the Baseline and Endline survey, the field work was conducted by field staff which included thirty interviewers (split equally between males and females), three supervisors who spoke the local languages of the study regions, as well as three field editors and three office editors. Interviewers selected and recruited households into the study. Supervisors verified the work of the interviewers as well as schedule and supervise interviews. A sizeable percentage of field staff was retained from the Baseline survey to the Endline survey. All field staff participated in centralized training sessions in both Baseline and Endline surveys. The training included: Project background and objectives; research ethics; survey interviewing techniques; methodology and sample selection procedures; field logistics and practice sessions. The data management teams were also trained to ensure that a high quality database with accurate data is developed for analysis. Participants included data coders, data entry clerks, research analysts, supervisors, editors and any team members responsible for data handling, cleaning, coding, and database development or any activities required to process the data collected.

Data collection

All team members in each region moved as one team and, therefore, moved together from one EA to another. In the field, interviewers ensured that only selected households and their eligible women and men were interviewed. In situations where the household members were not available, the team made call backs (up to three times) and if by the time they were leaving an EA, particular households were still not available to be interviewed they made replacements from the pool of sampled households. As part of the quality control measures, the supervisors and field editors edited the completed questionnaires at the close of each day's activities. In addition, each team was assigned one researcher to coordinate activities in the region to which he/she was assigned to ensure that procedures were rigidly followed. These researchers or coordinators paid visits to the field and sent along logistics including questionnaires and on their return brought back completed questionnaires for the office editors to review. The coordinators were supported by staff from the JHU·CCP's Office in Accra in the monitoring of the field survey.

Informed consent

Adult oral consent: Informed consent was obtained from all participants and was conducted in the home for individual survey participants. The interviewer read the consent form to the potential respondent in the participant's language of choice (English, Akan, or Ga). If the respondent agreed to participate in the survey, the interviewer required the respondent to sign/thumb print the informed consent form indicating his/her agreement to participate, in the presence of a witness. The witness was also required to sign the consent form. Finally the interviewer also signed to indicate s/he was the person taking the consent. Both the interviewer and the participant received a copy of the signed consent form. The consent form contained the contact information for

study supervisors and the local IRB to enable participants to ask questions or convey concerns following their participation in the survey. All study materials were available in English, Akan and Ga.

Informed consent for minors participating in the survey: For minors under the age of 18 years (the age of majority), in addition to signing the informed consent, parental consent was sought using another version of the informed consent form. Consent was obtained from parents at their homes at the time of interview.

Staff training

Project evaluation staff was trained on the BCS project background and objectives; protection of human subjects; survey interviewing techniques; study methodology, field logistics; data collection instruments and sample selection procedures. Staff also engaged in role plays, practice and debriefing sessions as well as training reviews.

Field quality control

The quality of field work was ensured using several levels of supervision and monitoring such as: checking all completed questionnaires in the field, random checks to ensure compliance with sampling specification as well as validation of the interviewing process. Selection of random households for re-interviewing was also conducted.

Data processing

Data was entered into an SPSS template. Validation was undertaken by checking and revalidation of data records. Data analysis was conducted using SPSS and Stata analytical software. Analysis included descriptive and summary statistics, bi-variate analysis and regression models, including simple and multilevel linear and logistic regression models. In addition to comparing Baseline to Endline indicators, we also assessed associations between individual and community level factors and key behavior and knowledge indicators.

Study ethics and security

The study activities adhered to ethical principles for conducting safe and appropriate research. All project staff was trained in human subjects' research and ethical standards and all steps were to ensure the safety and privacy protection of participants. Participant security was protected using unique ID numbers as well as avoiding the collection of any personal identification. The BCS project data security was also ensured by using locked file cabinets for hard copies of research tools and storing electronic information on password protected computers. Data collected is to be subsequently destroyed as stipulated in the research protocol.

STUDY FINDINGS

The section discusses the results of the evaluation studies conducted from 2010 to 2013. It is presented under the pertinent health modules of interest.

1. OVERVIEW OF PARTICIPANTS

The results described in this report are primarily from an Endline survey conducted in 2013 in the Greater Accra, Western and Central Regions. Endline results are compared to results from a Baseline survey conducted in 2010 and a limited Omnibus survey conducted in 2012. The results focus on comparisons of estimates between Baseline and Endline, and exposed and non-exposed groups for the Endline. Where data was available, comparisons with the midpoint Omnibus survey are also provided.

Table 1: Distribution of Survey Participants by Region and Survey

	Greater Accra n (%)	Western n (%)	Central n (%)	Total n
Baseline	947 (28.7)	1119 (34.0)	1229 (37.3)	3295
Omnibus	326 (46.8)	192 (27.6)	178 (25.6)	696
Endline	897 (30.7)	1015 (34.7)	1011 (34.6)	2923

1.1: Description of Endline study participants

The Endline sample included 2923 individuals, specifically 1197 men (41%) and 1726 women (59%) recruited form 1942 households. The majority of the sample lived in urban areas (66%) compared to rural areas. The age range for the sample was 15 to 59 years with an overall mean age of 31.58 years (SD 10.59). The age distribution had a slight right skew with most people in the sample being in younger age groups. Age range for participants from urban areas was 15 to 59 years with a mean age of 31.11 years (SD 10.35). Age range for participants from rural areas was 15 to 59 years with a mean age of 31.62 years (SD 11.03). While the spread of age was wider among males than females, the median age was fairly similar for both. The median age in each of the Regions was also similar.

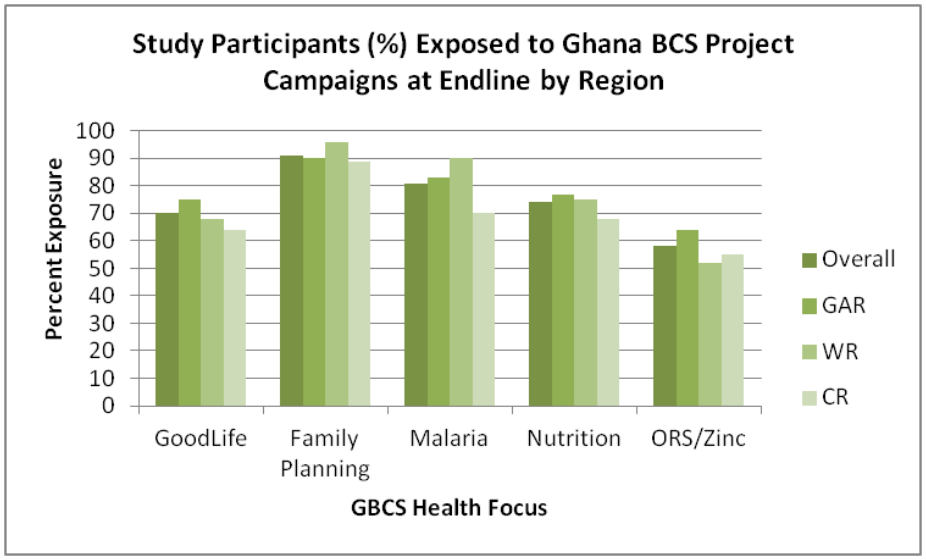
1.2: Exposure to BCS project activities

The BCS project used an approach based on multiple communication channels to achieve broach reach of health information among the target population, alongside specifically targeted interventions for a more intense delivery of specialized information for identified sub-groups of the population. The approach included the use of multiple re-enforcing channels such as national coverage of mass media through television, radio and internet, specific needs-based initiatives for all fifty Regional and District metropolitan areas in the targeted Regions, and more personal interventions at the community and household level for more than 1,500 communities in the three Regions. The project adopted the “Good Life. Live it well” theme as a unifying umbrella for health promotion within the focal health areas of the project. GoodLife branding was a visible and integral part of all mass media and community interventions information, a television game show, a radio show and health information disseminated via internet and mobile phone platforms.

National mass media campaigns were developed for Family Planning (FP), Malaria, Nutrition, Water and Sanitation, and Childhood Diarrhea. Exposure of the target population to BCS project activities at Endline is

summarized in Figure 3. The Ghana BCS project campaigns achieved good reach in the community for all health focus areas. Campaigns on FP promotion and Malaria prevention received the highest exposure compared to the other health areas; 91% of all the study participants reported exposure to the project's FP campaign and 81% of participants had been exposed to the malaria prevention campaign. Nearly a third of participants (74%) had been exposed to the nutrition campaign, 70% to the GoodLife campaign, and more than half (58%) to the campaign promoting oral hydration salts and zinc (ORS/Zinc) for the treatment of childhood diarrhea. Campaign exposure varied by Region: The GAR had the highest percentages for exposure to the GoodLife (75%), Nutrition (77%), and ORS/Zinc (64%) campaigns while the Western Region had higher exposure to FP (96%) and Malaria (90%) campaigns.

Figure 3: Study Participants (%) Exposed to Ghana BCS Project Campaigns at Endline, by Region



The BCS FP campaign had good reach among the target population. An overwhelming majority of participants (91%) reported awareness of at least one of the FP campaign components. Almost half of participants (47%) were aware of five or less FP campaign components, about two-thirds (64%) had seen six or less of the components, and 90% of participants reported being exposed to nine or less of the eleven components.

2. HOUSEHOLD AND POPULATION CHARACTERISTICS

2.1: Urban-rural distribution of sample

Similar numbers of households participated in the Endline survey from each Region; however, Greater Accra and Western Region contributed fewer rural households to the sample compared to Central Region. A total of 1942 households participated in the survey, yielding a total of 2923 participants.

Table 2: Distribution of Households by Region and Residence (Endline).

Region	Greater Accra n (%)	Western n (%)	Central n (%)	Total n (%)
Urban	621 (96)	384 (48)	310 (48)	1315 (68)
Rural	26 (4)	263 (52)	338 (52)	627 (32)
TOTAL	647 (33.3)	647 (33.3)	648 (33.4)	1942 (100)

2.2: Household electricity and durable goods

Table 3 below summarizes the characteristics of households participating in the Endline survey. More households from urban areas had electricity (94%) and durable goods compared to households from rural areas; nevertheless, more than three-fourths of the rural households had electricity (78%) almost three-fourths had radios (73%), and more than half of them had televisions (58%). There were more households with televisions (83%) than radios (77%) in urban areas, and more household with radios (73%) than televisions (58%) in rural areas. Almost all the households from urban areas (99%) and a high proportion of rural households (85%) had either a landline and/or mobile telephone; however, few households had private/personal modes of transportation (motorcycle, car, truck).

Table 3: Distribution of Households Having Electricity and Durable Goods. (Endline)

Background	Electricity	Radios	Television	Phones	Motorcycle	Car or Truck
Residence						
Urban	1236 (94)	1019 (77)	1090 (83)	1302 (99)	87 (7)	192 (15)
Rural	488 (78)	455 (73)	367 (58)	536 (85)	31 (5)	43 (7)
						Region
Western	550 (85)	504 (78)	483 (75)	605 (93)	38 (6)	68 (10)
Central	575 (89)	457 (70)	433 (67)	591 (91)	33 (5)	64 (9)
Gtr. Accra	599 (93)	513 (79)	541 (84)	642 (99)	47 (7)	103 (16)
Total	**1724 (89)**	**1474 (76)**	**1457 (75)**	**1838 (95)**	**118 (6)**	**235 (12)**

Overall, the Greater Accra Region had the highest proportions for households with electricity and durable goods. Although relatively high, the Central Region had lowest proportions households with specific durable goods.

2.3: Demographics

The socio-demographic profile of the sample is summarized in Table 4 below.

Table 4: Sociodemographic Distribution of Endline Participants

CHARACTERISTICS	MALES 1197 (41%)	FEMALES 1726 (59%)	TOTAL 2923 (100%)
Age group			
15-19	185 (15.5)	230 (13.3)	415 (14.2)
20-24	179 (15.0)	304 (17.6)	483 (16.5)
25-29	179 (15.0)	341 (19.8)	520 (17.8)
30-34	161 (13.5)	297 (17.2)	458 (15.7)
35-39	117 (9.8)	225 (13.0)	342 (11.7)
40-44	120 (10.0)	159 (9.2)	279 (9.5)
45-49	94 (7.9)	155 (9.0)	249 (8.5)
50-54	90 (7.5)	0	90 (3.1)
55-59	69 (5.8)	0	69 (2.4)
Highest level of education completed			
None	77 (6.4)	314 (18.2)	391 (13.4)
Primary	285 (23.8)	500 (29.0)	785 (26.9)
Middle/JSS	478 (39.9)	568 (32.9)	1046 (35.8)
Secondary/SSS	238 (19.9)	258 (14.9)	496 (17.0)
Higher	116 (9.7)	85 (4.9)	201 (6.9)
Religion			
Catholic	108 (9.0)	134 (7.8)	242 (8.3)
Anglican	23 (1.9)	11 (0.6)	34 (1.2)
Methodist Presbyterian	183 (15.3)	262 (15.1)	445 (15.2)
Pentecostal/Charismatic	416 (34.8)	623 (36.1)	1039 (35.5)
Other Christian	226 (18.9)	409 (23.7)	635 (21.7)
Moslem	167 (14.0)	218 (12.6)	385 (13.2)
Traditional/Spiritualist	7 (0.6)	6 (0.3)	13 (0.4)
No religion	57 (4.8)	47 (2.7)	104 (3.6)
Other	10 (0.8)	16 (0.9)	26 (0.9)
Ethnic group			
Akan	785 (63.9)	1101 (63.8)	1866 (63.8)
Ga/Dangme	110 (9.2)	146 (8.5)	256 (8.8)

CHARACTERISTICS	MALES 1197 (41%)	FEMALES 1726 (59%)	TOTAL 2923 (100%)
Ewe	139 (11.6)	218 (12.6)	357 (12.2)
Guan	46 (3.8)	63 (3.7)	109 (3.7)
Mole-Dagbani	56 (4.7)	63 (3.7)	119 (4.1)
Grussi	18 (1.5)	21 (1.2)	39 (1.3)
Gruma	11 (0.9)	18 (1.0)	29 (1.4)
Not Ghanaian	17 (1.4)	24 (1.4)	41 (1.4)
Other	35 (2.9)	72 (4.2)	107 (3.7)
Marital status			
Never married	452 (37.8)	521 (30.2)	973 (33.3)
Married	595 (49.7)	900 (52.1)	1495 (51.1)
Living together	102 (8.5)	151 (8.7)	253 (8.7)
Divorced/Separated	35 (2.9)	118 (6.8)	153 (5.2)
Widowed	11 (0.9)	36 (2.1)	47 (1.6)

There were a total of 2923 participants in the sample of which 59% were female and 41% were male. Overall, the sample was characterized by a young population with a majority of males (59%) and females (67%) each being 34 years of age and younger. The mean age for the sample was 31.3 years (SD: 10.6). Age range for males was 15 to 59 years with a mean above the sample average at 33.0 years (SD: 12.2) and age range for females was 15 to 49 years with a mean below the sample average at 30.1 years (SD: 9.1). Slightly more than a quarter of the sample had completed basic primary education (27%), however almost a fifth of the females (18%), and about three times the proportion of males (6%) had no education. Few participants had higher than secondary school level of education.

An overwhelming majority of participants belonged to a Christian religion and among these only about 8% were of the Catholic faith. Moslems constituted about 13% of the sample. About two-thirds of the participants (64%) belonged to the Akan ethnic group, which is the predominant ethnicity in the Central and Western Regions of Ghana. Over half of the sample (51%) and slightly more females (52%) than males (505) reported that they were married at the time of the survey, compared to a third of the participants (33%) who were single and about 9% who were cohabiting with a partner.

2.4: Literacy and media

The nature of the behavior change campaigns makes assessing the level of literacy among the participants important. 27% of the sample had only completed primary school with more of them being males (24%) than females (29%). Similar proportions of males in urban and rural areas had not been to school (6%), however among females; substantially more from the rural area (24%) had not attended school compared to those in the urban areas (15%). The proportion of participants reporting some level of literacy was unchanged from Baseline at 72% and observed gender differences present during the Baseline survey also persisted. Reported ability to read with ease remained highest among males at 50% (versus 52% at Baseline) compared to females at 31% (versus 30% at Baseline). However there were slight increases in the proportion for both males (21% at Endline compared to 15%

at Baseline) and females (41% at Endline compared to 38% at Baseline) who stated that they could not read at all. Place of residence was also associated with literacy; there were substantially more males in urban areas who could read with ease (72%) compared to the rural areas (28%), and even fewer females in urban areas (37%) compared to rural areas (17%) who could read with ease. The BCS program's use of visual and story-line presentations through television and radio spots, music lyrics, and one-on-one home visits for conveying health information was an appropriate mix of approaches for subsets of the population with low literacy levels.

Table 5: Endline literacy and media exposure

Characteristics	Males 1197 (41%)	Females 1726 (59%)	Total 2923 (100%)
Literacy and media exposure			
Cannot read at all	253 (21)	708 (41)	961 (33)
Able to read with difficulty	345 (29)	480 (28)	825 (28)
Able to read with ease	595 (50)	533 (31)	1128 (39)
Blind/visually impaired	4 (0.3)	1 (0.1)	5 (0.2)
Refused to answer	-	4 (0.2)	4 (0.2)
Exposed to all media types	489 941)	386 (22)	875 (30)

3. FAMILY PLANNING

Family planning (FP) can significantly reduce maternal, neonatal and infant mortality. In 2008, Ghana's total fertility rate (TFR) was 4.0. In 2003, the use of modern contraceptive methods among married women was 19%, however the most recent (2008) round of the GDHS, showed that use of modern contraceptives had decreased to 17% (GDHS, 2009). The Multiple Indicator Cluster Survey (MICS) showed increases in use of modern contraception by married and cohabiting women in 2011: 24% of women from WR, 29% from CR, and 27% from GAR were using a modern method of FP (GSS, 2011). The BCS program implemented eleven campaign spots on various FP topics. In the BCS Endline survey, participants were asked about their fertility and contraceptive preferences; history of discussing contraception with family, friends and partners, and beliefs and attitudes around contraception. The results for the analyses of FP information are presented below.

3.1: Current and future use of modern contraception

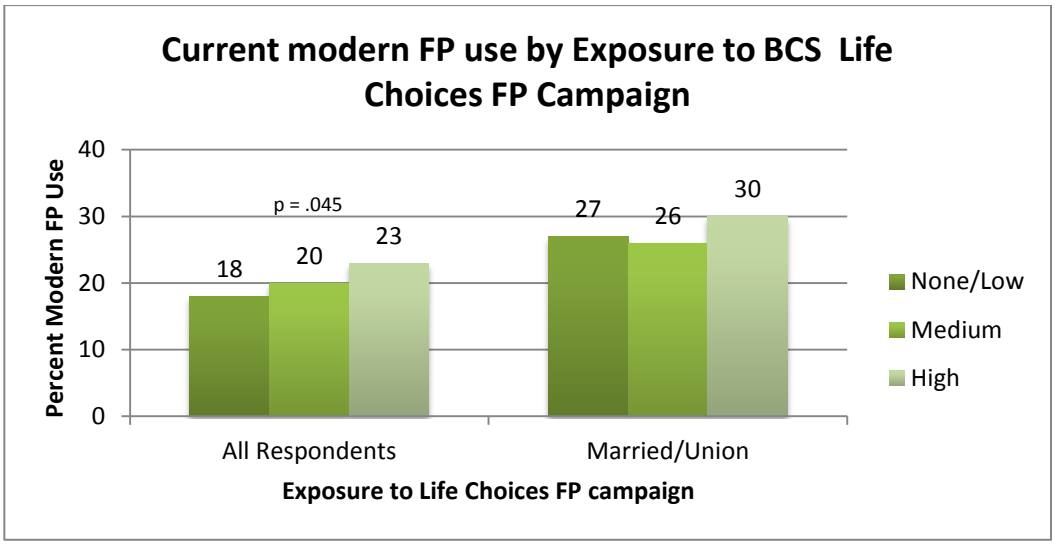
At BCS Endline, 38% of married and cohabiting participants reported using any method of contraception which was a significant increase over baseline findings of 35% ($p = 0.02$). The majority of participants using any contraception method were comparable in urban areas (37%) and rural areas (39%); while estimates in the MICS study (GSS, 2011) show similar results for use within urban areas (37%), the MICS estimates derived for use in rural areas are much lower (33 %) compared to Endline findings.

Showing a significant increase over baseline estimates, at Endline 28% of all married and cohabiting participants were using modern contraception compared to 24% ($p = .002$) at Baseline. These estimates were also higher than results reported in the MICS that showed urban and rural areas each had 23% of participants using modern FP (GSS, 2011). Significantly more married and cohabiting participants in the WR were using modern methods (32%) followed by users in the CR (31%) and GAR (22%) ($p< .001$). Significantly more married and cohabiting participants residing in rural areas (31%) compared to urban areas (25%) were using a modern FP method ($p=0.011$). In addition, 73% of married and cohabiting participants who reported that they were using contraception to delay or prevent a pregnancy, stated that they were using a modern method of contraception to do so.

Level of education completed was associated with contraception prevalence and both use of any contraception method and use of any modern contraception method increased with increasing levels of education. Specifically, use of any contraception increased from 35% among both those with no education and those who had completed primary education to 38% among those with junior school level education, 40% for those with secondary school level education and 47% among those with higher education. Use of modern FP methods also increased from 19% among participants with primary level education to 26% among those with more than secondary school level education.

An **exposure index** to the eleven different components of the Life Choices FP campaign was developed based on frequency distributions, with awareness of **0 - 3 components for low exposure**, **4 - 6 components for medium** exposure, and **7 or more components indicating high exposure**. Use of modern contraception methods by all participants increased with higher levels of exposure to the FP campaign ($p=0.045$). 18% of participants with low levels of exposure, 20% with medium exposure, and 23% with high exposure to the FP campaign were using modern FP methods at the time of the Endline survey. There were no significant differences in exposure by gender, however, marital status of participants was significantly associated with use of modern FP methods; specifically, among participants who were single, 5% with low exposure, 10% with medium exposure and 12% with high exposure to the BCS FP campaign were using modern FP methods ($p=.003$).

Figure 4: Current Modern FP Use by Exposure to Life Choices FP Campaign



Although use of modern FP increased with exposure among married and co-habiting participants (from 27% for low exposure to 30.5% for high exposure to the FP campaign), the increases were not statistically significant. However, intention to use contraception also increased significantly with exposure to the FP campaign among married and cohabiting participants (p<.001) overall, and among all males (p=.03) and all females (p<.001) separately; nearly two-thirds (64%) of married and cohabiting participants with high exposure to the BCS FP campaign stated they would use contraception to delay or avoid pregnancy in the future. In addition, knowledge of where to obtain a method of contraception increased significantly (p< .001) with exposure to the BCS FP campaign among married and cohabiting participants; 73% of participants with low, 80% with medium and 86% with high exposure to the BCS FP campaign reported they knew where they could go to obtain a method of contraception.

Table 6: Current Use of Contraceptive Methods by Exposure to Life Choices FP Campaign

	Endline (n=581)		p value
Contraception Method	**Unexposed (%)**	**Exposed (%)**	
Female sterilization	3.3%	3.3%	0.602
Pill	10.2%	19.0%	0.062*
IUD	3.3%	1.9%	0.357
Injectables	11.9%	24.6%	0.017*
Implants	6.8%	10.7%	0.242
Male condom	23.7%	14.8%	0.059*
Female condom	0.0%	.6%	0.721
Lactational amenorrhea	0.0%	1.3%	0.464
Rhythm method	31.7%	20.9%	0.045*
Withdrawal	16.7%	4.2%	0.001*

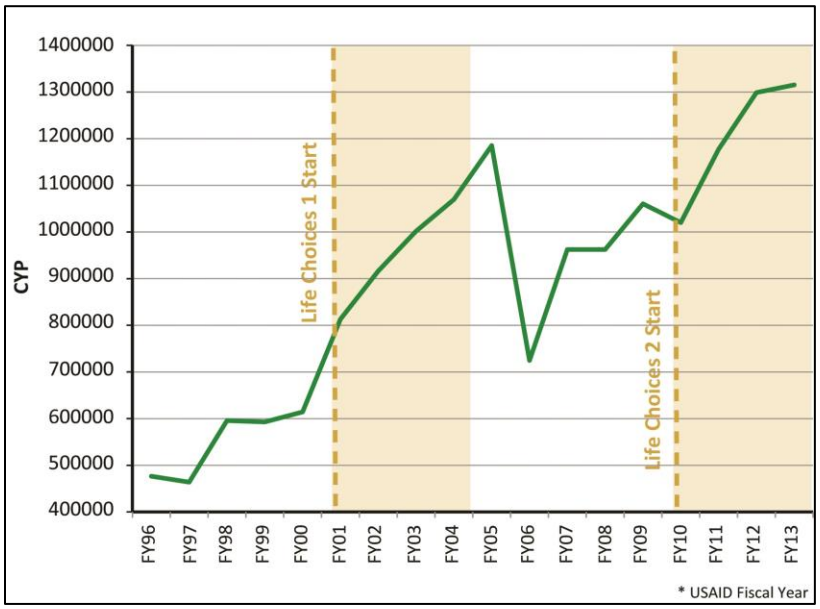
*statistically significant difference

Married and cohabiting participants provided information on the current FP method they were using. At Endline, the more commonly used modern FP methods included injectables (23%), pill (18%), and male condoms (16%). These methods increased significantly with exposure to the BCS FP campaign. In addition, there were significant decreases in the use of traditional FP methods, specifically rhythm (p= .045) and withdrawal (p<.001), among participants exposed to the FP campaign.

The most popular methods of modern FP reported at Endline were similar to those reported by the MICS (GSS, 2011). Specifically, the most popular method was the injectable, although it was only used by 9% of the married women, followed by the pill used by 8% of married women. Only 2-3% of married women were using the male condom.

From 1996 to 2013, the rate of increases in CYP (couple years of protection) was fastest during the two eras of "Life Choices" implementation as compared to other times, as shown by the shaded areas on the chart. During Life Choices 2, not only were the losses between 2006-2009 recouped, Ghana surpassed the previous peak of 1.2 million CYP that was achieved in 2005 to reach over 1.3 million CYP in 2012, suggesting an influx of additional users during the period.

Figure 5: CYP by Year and Life Choices Campaign



3.2: Fertility desires, decisions, and communication

The BCS Life Choices FP campaign improved decision-making and communications about FP among participants. The proportion of married and cohabiting participants who believed that the decision to use contraception should be jointly made by spouses increased significantly (p<.001) with exposure to the BCS FP campaign; two thirds (66%) of participants with low compared to more than three-fourths (76%) of participants with high exposure believed both spouses should be involved in this decision. There was also an increase in the proportion of participants who stated that their spouse desired the same number of children as they did; 60% of participants with low exposure compared to 67% with high exposure to the BCS FP campaign stated that their spouse concurred on the number of children to have and this was marginally significant (p=.063).

Table 7 below shows that spousal discussions about FP increased with increased exposure to the BCS FP campaign. The majority of both males (57%) and females (42%) with high exposure to the BCS FP campaign stated that they had discussed FP with their spouse compared to those with low and medium exposure, however the increase by exposure level was significantly different for males only (p=.025). In addition, over half of male participants (60%) and over two-thirds (68%) of female participants with low and medium levels of exposure to the BCS FP campaign also stated that they had initiated the last discussion on FP with their spouse. Participants' belief that their spouse or partner's opinion on child spacing and FP was very important was increased as level of exposure to the BCS FP campaign increased; however the increase was significant among females only (p=.002).

Table 7: Spousal Communication about Child-Spacing and Family Planning by Level of Exposure to Life Choices Campaign, by Gender. (Endline)

	Males (%)				Females (%)			
	Low	**Medium**	**High**	**p value**	**Low**	**Medium**	**High**	**p value**
Discussed family planning with spouse in the last 12 months								
Yes	45.1	50.0	57.4	0.025*	36.5	36.7	41.7	0.368
Initiator of last FP discussion								
Respondent	60.5	59.1	57.4	0.924	68.6	68.1	57.1	0.207
Spouse	36.1	39.0	39.5		31.4	31.9	41.9	
Importance of spouse/partner's opinion on child spacing/FP								
Not important	12.8	12.9	13.5	0.099	15.0	24.7	60.3	0.002*
Somewhat important	20.0	16.1	10.8		12.8	16.3	70.8	
Very important	67.2	71.0	75.8		9.2	14.8	76.0	
Likelihood of discussing child spacing/FP with partner/spouse in next 12 months								
Not likely	30.9	36.6	33.6	0.160	42.4	36.6	33.6	0.009*
Likely	25.7	25.6	18.4		24.3	25.6	18.4	
Very likely	40.0	34.3	45.3		26.7	34.3	45.3	

*statistically significant difference

Table 7 above also shows that the proportion of females reporting that it was very likely that they would discuss child-spacing or FP issues with their partner or spouse in the next year also increased significantly from 27% for low exposure to 45% for high exposure (p =.009) to the BCS FP campaign.

3.3: Family planning efficacy

Perceived efficacy of FP and contraception is an important antecedent to behavioral intentions and overt behavior change. Overall, compared to participants with low and medium level exposure to the BCS FP campaign, significantly more participants with high levels of exposure were confident that they could discuss FP and contraception with their spouse/partner or healthcare provider, ask their providers about FP and contraception, and obtain FP and contraception when they needed it. These results are summarized in Table 8 below.

Table 8: Family Planning Efficacy by Exposure to BCS FP Campaign among Married and Cohabiting Participants

	Discuss FP with partner		Ask provider for FP		Obtain FP if needed		Use FP consistently	
EXPOSURE	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Low	185	66.5	197	70.6	179	65.1	186	67.1
Medium	284	78.5	285	77.9	280	77.3	263	72.3
High	202	81.8	209	83.9	198	79.2	176	72.4
TOTAL	671	75.6	691	77.3	657	74.1	625	70.7
p value	0.001*		0.001*		0.001*		0.292	

* statistically significant difference

Although there were slight increases in participants' confidence regarding ability to use FP consistently to prevent a pregnancy, the differences by level of exposure were not statistically significant.

3.4: Attitudes towards family planning

Attitude questions were asked along four domains related to FP: gender norms, quality of life, health and safety, and religion and values.

3.4.1: Attitudes related to gender

Regarding gender attitudes, the proportion of participants *disagreeing* that the husband should make the decisions about whether the couple should use a child spacing or FP methods increased from 62% at Baseline to 90% at Endline. In addition, among cohabiting and married participants, 80% of females and 92% of males *disagreed* that the man should decide on use of child spacing FP method (86% overall). In addition, 94% females but few males (9%) men agreed that husbands and wives should discuss the number of children they want to have. Exposure to the BCS FP campaign was significantly associated with participant *disagreement* to this statement ($p < .001$), however, campaign exposure was not associated with agreement that both spouses should discuss the number of children desired.

Table 9: Gender-based Attitudes Related to FP by Exposure to Life Choices FP Campaign

Attitudes towards gender-based statements related to family planning				
	Exposure to FP Campaigns			**Chi^2**
	Low	**Medium**	**High**	**p value**
The husband should be the one to decide whether the couple should use a child spacing/family planning method (DISAGREE)	80.3	87.7	89.7	0.001*
Husbands and wives should discuss the number of children they want to have (AGREE)	46.0	43.6	44.6	0.334
A woman should continue bearing children until she has at least one son (DISAGREE)	67.4	67.2	74.6	0.001*
A woman who has no children is not complete (DISAGREE)	48.1	46.0	48.4	0.042

*statistically significant difference

The implication is that while the total number of children desired may be the man's decision, females contribute to decisions about *when* they should have a child. This thinking would be consistent with situations were men are the primary source of income for the family and decide how many dependents to have while women retain control over their bodies and contribute to decisions about when they want to get pregnant.

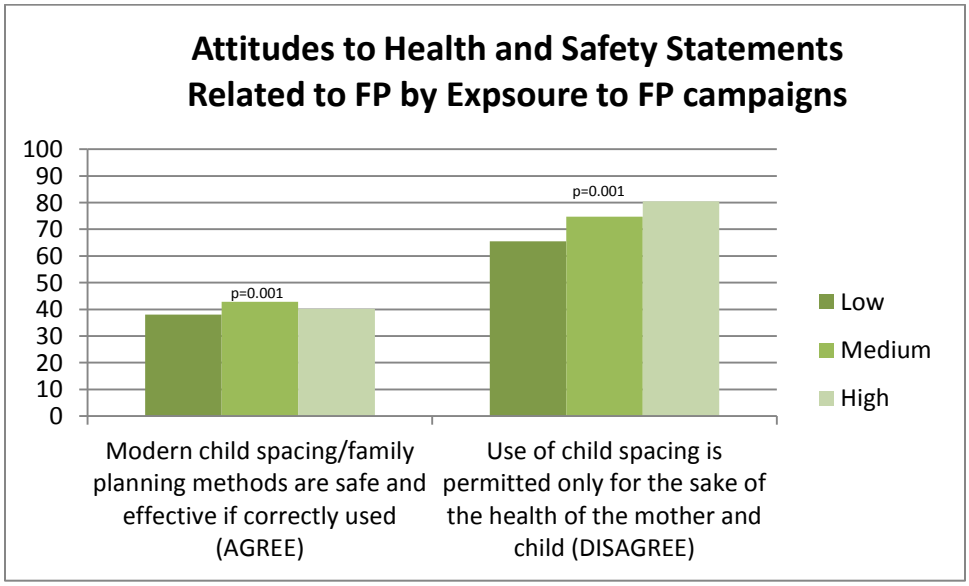
Attitudes supporting women having more control over their bodies and fertility are also reflected in the results: 46% women and 93% men (69% overall) *disagreed* that a woman should continue bearing children until she has at least one son, however almost a quarter of females also responded that they did not know. There were significant associations between exposure to the campaign and *disagreement* that a woman should continue having children until she has a son ($p < .001$) and that a woman without children is incomplete ($p=.042$). Nevertheless, a substantial gender discrepancy remained regarding perceptions of womanhood among married and cohabiting participants. Very few females (7%) as opposed to almost all the males (90%) *disagreed* that a woman who has no children is not complete. A possible explanation may be that childbearing is considered a validation of a woman's status as a wife and consequently, an expectation of marriage.

3.4.2: Attitudes related to health and safety

Overall, less than half (41%) of the married and cohabiting participants, and 69% of females compared to 10% of males *agreed* that modern FP methods are safe and effective if used correctly. While this gender-gap highlights a probable knowledge deficit among males, more males (83%) than females (65%) *disagreed* that the use of child spacing is permitted only for the sake of the health of mother and child (73%). This shows that males perceive that there are additional benefits associated with the use of FP but may have concerns related to safe use.

There was a significant association seen with exposure to the FP campaign and agreement that modern FP methods are safe when used correctly ($p <.001$) for all participants and also among those who were married or cohabiting. There was also a significant dose-response association between exposure to the FP campaign and disagreement that child space is only used for the sake of the health of the mother and child ($p <.001$). Specifically, the proportion of participants disagreeing with the latter statement increased from 65% to 81% with higher levels of exposure to the BCS FP campaign.

Figure 6: Attitudes to Health and Safety Statements Related to FP by Campaign Exposure



3.4.3: Attitudes related to quality of life

Gender-gaps persisted for attitudes related to FP's influence on quality of life and only 12% of males *agreed* that it was worth paying for FP. At Endline, less than half (43%) of the participants *agreed* that couples who practiced child spacing or FP had a better quality of life than those who did not: This low proportion was due to a substantial gender-gap (73% of females compared to 11% of males). Similar proportions (67% of females and 10% of males) *agreed* that child spacing helped parents take better care of their children. There were also large differences in agreement (54% of females, 10% of males) that child spacing improved the relationship of a couple.

Regardless, there was a highly significant association between exposure to the BCS FP campaign and agreement that use of FP improved quality of life ($p<.001$). This association was not seen for attitudes the role of FP in improving relationships and helping parents care for their children. A possible explanation may be that the latter variables do not accurately measure quality of life in this population, or perhaps, participants' perceptions about what constitutes a good quality life are more tangible constructs such as food, shelter, and money, rather than abstract concepts such as 'relationships'.

3.4.4: Attitudes related to religion and values

Gender gaps persisted for attitudes related to religion and values and FP. Few females (4%) and many males (77%) *disagreed* that their religion condemned the use child spacing and FP and 18% of females and almost all males (92%) *disagreed* that it was good to have many children to ensure that one of them would survive or be rich enough to provide for their parents in their old age. However, the gender gap diminished regarding attitudes about control over child bearing. Specifically, 60% of females and 89% of males (72% overall) disagreed that the number of children a couple will have is God's decision. There was marginal significance ($p=.06$) to the association between exposure to the BCS FP campaign and participant disagreement that only God could decide the number of children a couple will have. This is an indication of perception of increased control over one's fertility due to exposure to the campaign.

4. MATERNAL HEALTH

The results presented below focus on the maternal health (MH) knowledge, attitudes and practices of women with a live birth in the past three years. The MH campaign included a game show and health worker visits. The sub-sample of participants from the survey who reported being exposed to the Maternal Health (MH) campaign was small (n=12) which impacted the ability to derive significant results.

4.1: Antenatal Care

Antenatal Visits

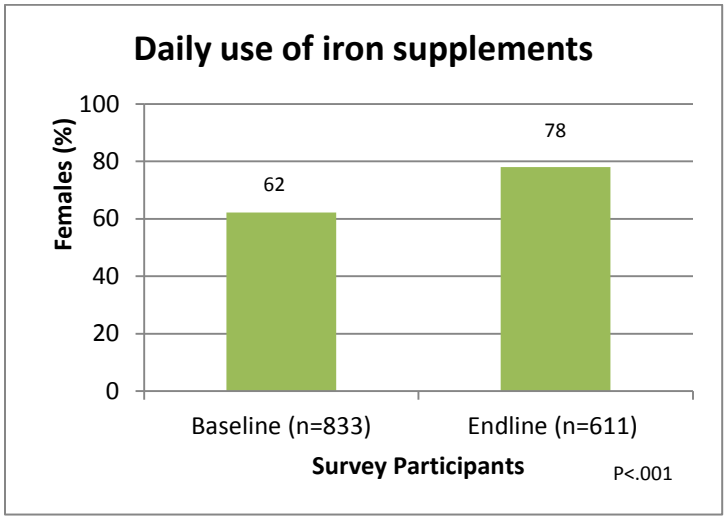
At Endline, the majority of females reported that they received antenatal care (ANC) during their pregnancy. In the Baseline, 97.6% of women received ANC and at Endline this increased to 99.9% (p<.001). These results exceed findings of 95% from the Ghana DHS (2008) and a more recent estimate of 91% for the year 2011 reported by the GHS (GHS, 2011). Trend data reported by the GHS in the 2011 Annual Report shows a decline in ANC coverage since 2010, however the BCS project evaluation results showed an increase in ANC coverage among participants exposed to the MH campaign components. Under normal circumstances, the World Health Organization (WHO) recommends that a woman without complications should have at least four antenatal care visits, starting in the first trimester of pregnancy. As recommended, the majority of women started ANC during the first trimester of their pregnancy. Specifically, at Baseline 67% of females compared to 70% of females at Endline started ANC in the first trimester of pregnancy (p=.094). This finding also exceeded that from several local surveys, specifically 52% for the year 2011 reported by the GHS (GHS, 2011), 53% derived from the Ghana Maternal Health Survey (GMHS) (Quansah, 2010) and 55% from the Ghana DHS (2008). Most of the females at Baseline (82%) and Endline (79%) believed that a pregnant woman should attend at least five ANC visits during her pregnancy; these findings are similar to estimates of 78% of women from Ghana DHS (2008) and 77% of women from GMHS (2010) who had four or more ANC visits for their most recent live birth.

Almost all females from the Baseline and Endline surveys agreed with the need for pregnant women to received facility-based antenatal care. At Baseline, 96% of females responded 'yes' to the question, should a woman leave the house to go for prenatal care at the health facility. At Endline this proportion increased significantly to 99% of females (p<.001). This belief is reflected in the behaviors of females who reported having at least one ANC visit during their pregnancy. Specifically, high proportions of these females at Baseline (99%) and at Endline (98%) received their ANC from skilled trained health personnel; they reported that they were attended to by either a medical doctor, registered nurse, midwife or community health worker. This finding also is an improvement over the estimate of 95% from the Ghana DHS (2008) and 96% derived from the GMHS (Quansah, 2010) for antenatal care provided by a skilled provider in the preceding five years.

Supplements in pregnancy

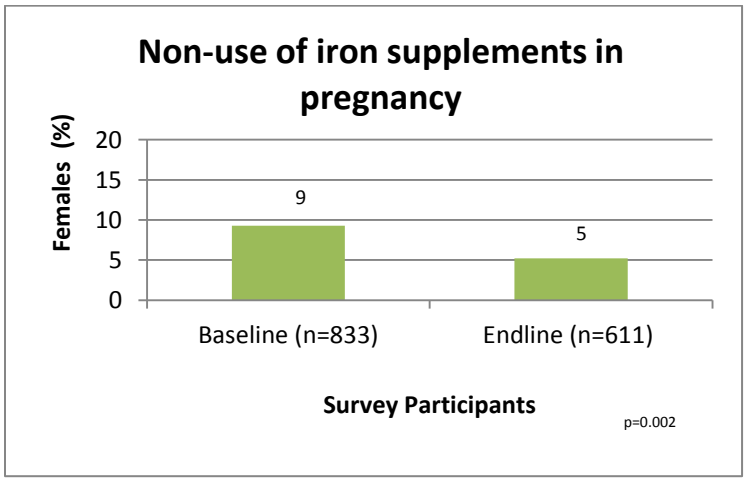
At Baseline, almost two-thirds (62%) of females reported that they took iron supplements daily during their pregnancy. This increased significantly at Endline to over three-quarters (78%, p<.001).

Figure 7: Baseline and Endline daily use of iron supplements in pregnancy



The proportions of females who did not use any iron supplements in pregnancy also declined from 9% at Baseline to 5% at Endline (p=.002). This represents another example of results that show an increase over the estimate of 14% reported in the Ghana DHS (2008) survey.

Figure 8: Baseline and Endline non-use of iron supplements in pregnancy



4.2: Natal Care

The proportion of females who had their children born in a government health facility increased significantly between Baseline (61%) and Endline (66%) (p=.024), and also increased above the estimate of 48% reported by Ghana DHS (2008) and 59% for the Ghana MHS (Quansah, 2010). About a quarter of females (29%) at Baseline and 23% at Endline had their children born at private health facilities. There was not a significant change in the Baseline (10%) and Endline (9%) proportions of females who delivered their children at home (p=.226); however, this finding was much lower than the 45% estimate reported by the Ghana MHS (Quansah, 2010).

About three-quarters of females in both surveys were attended to by health personnel during the delivery of their children; 74% of females at Baseline and 76% at Endline received delivery care from a doctor, nurse, midwife

or community health worker. This was not significant overall (p=.180), however, there was a significant increase (p=.038) in the proportion of births attended to by trained personnel in the Western region (63% at Baseline compared to 70% at Endline. The GHS (2011) reported the national coverage for skilled deliveries at 52% for the year 2011, and reported estimates of 60% for CR, 56% for GAR, and 55% for WR for the same year. Overall, compared to data from the GHS (2011), the BCS project Endline results showed an increase in the estimate for skilled deliveries for the three focus Regions among participants who reported being exposed to the project's MH campaign.

At Baseline, few females (5%) noted 'learning and identifying alarm symptoms' as a reason to go to a health facility during delivery. By Endline, this proportion had increased significantly to 13% of females (p<0.001). Although this represents a significant change from Baseline, there is still a lot of room for improvement. Other responses at Endline that were comparable to Baseline values include 'having a safe delivery' (58%), 'to examine the mother's condition' (36%), 'to detect problems in a timely manner' (36%), and 'to confirm the baby's condition' (32%). A quarter (25%) of eligible respondents at Baseline believed that 'severe pain in the abdomen' was a danger sign or alarm that could occur during pregnancy or delivery. This increased significantly to 33% (p<.001) at Endline. Severe weakness was noted by 21% of females at Baseline and 24% at Endline (p=.110). Also, 13% of females at Baseline listed 'severe headache' during pregnancy as an important danger sign and this increased at Endline to 15% (p=0.113). Other responses that did not demonstrate appreciable increase from Baseline include 'severe vaginal bleeding' (44%), 'very long labor' (15%), 'high fever' (12%,) and 'abnormal positioning of the child' (9%).

4.3: Postnatal Care

Comparable proportions of females at Baseline (94%) and Endline (93%) had a post-partum checkup. Almost three-quarters of females at Endline (72%) had their checkup within 24 hours after delivery, 12% were seen in 1-2 days and 9% were seen after 2 days. The GHS reported a postnatal care coverage estimate of 65% for the year 2011 (GHS, 2011) which was substantially below that measured by the BCS project.

Table 10: Baseline and Endline Post-Partum Check Up By Health Personnel

Post-Partum Check-Up by Health Personnel			
	Baseline %	**Endline %**	**p value**
AGE	78.3	86.3	0.003*
15-29 yrs	79.5	87.7	0.003*
30-49			
REGION	63.6	78.9	0.001*
Western	69.9	87.8	0.001*
Central	95.9	92.3	0.949
GAR			
RESIDENCE	88.9	94.7	0.002*
Urban	62.7	73.7	0.009*
Rural	78.9	87.1	0.001*
TOTAL			

* Statistically Significant difference

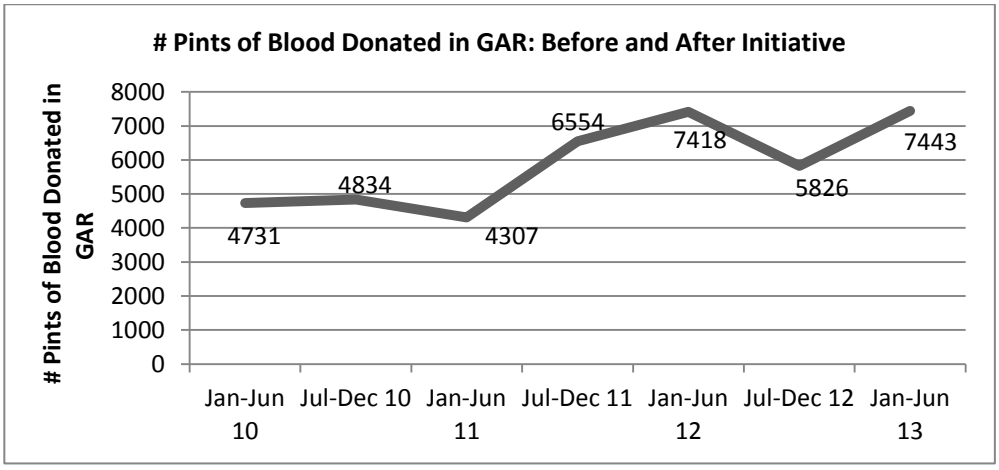
The proportion of females who received a post-partum checkup from health personnel increased from 79% at Baseline to 87% at Endline (p<.001). There were also highly significant increases in postpartum checks performed by trained health personnel by age, region, and residence sub-groups.

Very few females (7%) reported at Baseline that 'learning and identifying alarm symptoms' was a reason for a woman to go to a health facility during the post-partum period. This increased significantly to 12% at Endline (p<.001). Other Endline responses for reasons to have facility-based postpartum checkup did not differ significantly from Baseline values and include: 'to examine the mother's condition' (68%), 'to confirm the baby's condition' (67%), and 'to detect problems in a timely manner' (21%).

4.4: Blood Donation Program

A campaign to increase blood donations to support safe delivery was implemented in the Greater Accra Region. As shown in the graph below, there was a large and sustained increase in blood donations in the region after the initiative started in June 2011 (see chart below). The average monthly blood collection during the 18 months prior to the intervention was 770 pints per month, as compared to 1135 pints per month during the 24 months since the intervention started. That is a 47% increase per year.

Figure 9: Number of Pints of Blood Donated in GAR: Before and After Initiative



Data Source: Ghana National Blood Transfusion Service

5. INFANT AND CHILD HEALTH

5.1: Awareness of danger signs in under-fives

Eligible participants for this section of the surveys were men or women with a live birth in the past five years preceding both surveys. Due to the duration of the project, data was also assessed on live births in the three years preceding both surveys. Infant and young children feeding practices was explored using data collected on infants aged six to 23 months at the time of both surveys. Among the adults with live births in the preceding five years, the proportions that were aware of excessive cold, purplish complexion and failure to nurse as problems increased significantly from Baseline to Endline. At Baseline, about a fifth of participants (20.6%) were aware that failure of a newborn to nurse was an important problem that could endanger the life of a newborn, by Endline this increased to 23.7% (p=0.024). At Baseline, 4.2% and 1.2% of participants were aware that excessive cold and purplish complexion were important problems that could endanger the life of a newborn. At Endline these values rose to 8.2% and 3.9% respectively (p=0.001). Other symptoms cited at Endline include: child being too small (7.7%), having a pale complexion (8.0%), failure to cry (21.6%), a high fever (14.8%), and bleeding from the cord (8.0%).

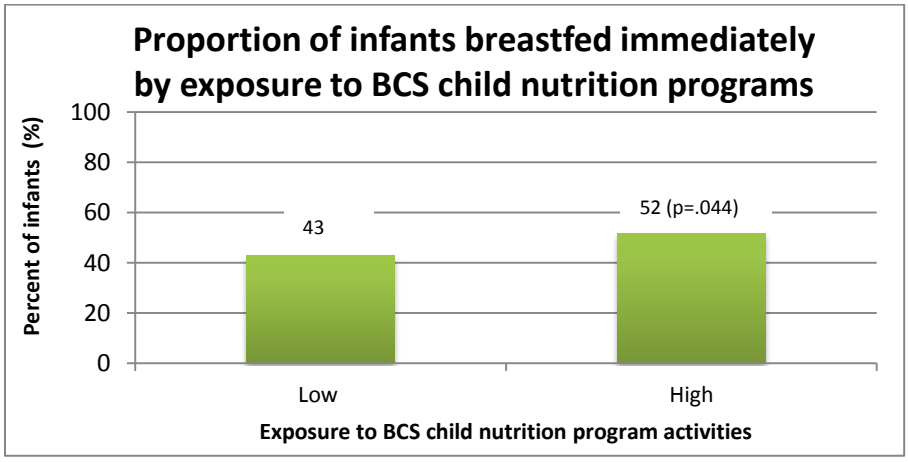
There was an increase in the proportion of women with live births in the past five years who knew that breast feeding was basic care that should be offered to all newborns immediately after delivery. The values rose from over a quarter of women (26.9%) at Baseline to about a third (30.6%) at Endline (p=0.044). There was no increase in the proportion of women at Endline (compared to Baseline) who were aware of cleaning and wrapping the baby (84.0%), caring for the cord (28.2%), and caring for the eyes (3.9%).

5.2: Symptoms requiring the child to go to the health facility

At Baseline, 31.1% of eligible men and women cited not eating as a symptom warranting immediate health facility care. At Endline this increased significantly (p=0.026) to 35.5%. Proportions who cited drinking poorly (2.8%) and chest indrawing (1.3%) rose significantly at Endline to 5.0% (p=0.008) and 2.5% (p=0.030) respectively. Among eligible women only, over half (52.8%) cited fever at Baseline and this rose significantly to 58.8% at Endline (p=0.006). Proportions of eligible women citing fast breathing as a symptom rose significantly from 2.4% at Baseline to 5.1% at Endline (p=0.001). Other symptoms cited at Endline include: fever (51.1%), seizures (13.3%), worsening sickness (18.9%), difficult breathing (7.7%) and blood in stool (3.4%).

5.3: Initiation of breastfeeding

Figure 10: Proportion of infants breastfed immediately by exposure to BCS child nutrition programs



5.4: % of infants given other than breast milk in the first 3 days

There was a significant decline in the proportions of infants who were given food or fluids other than breast milk in the first three days of life. In the Baseline survey, over a quarter of infants (26.3%) were reported to have been given something other than breast milk within the first three days, however by Endline only 17.5% of infants were reported to have been given (p=0.001). Similar proportions were seen in infants born to mothers with low or high exposure to child nutrition program messages (p=0.658).

5.5: Initiation of soft or semi-solid foods

In the Western region only, there was a significant increase in the proportion of infants who were first given soft or semi-solid feeds when aged six months or older. Baseline values of 54.1% rose to over two-thirds (67.8%) at Endline (p=0.001). Other regions however, did not show appreciable increase from Baseline to Endline. Overall, at Endline, 63.5% of all infants were given soft or semi-solid feeds only after six months of age. This is lower than Baseline values of 67.4% and the Endline values did not differ by exposure to program activities.

5.6: IYCF practices

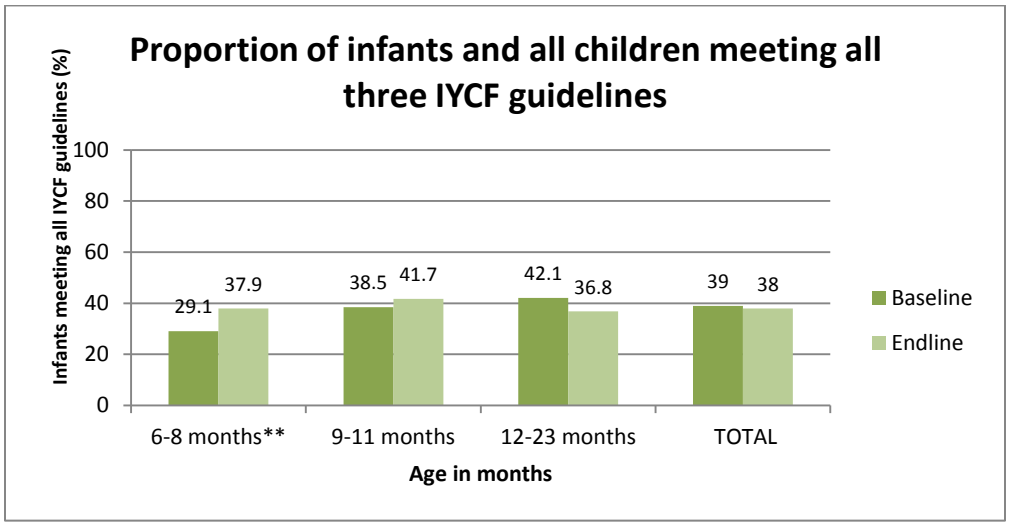
Infant and young child feeding (IYCF) guidelines recommend that all infants and young children (six to 23 months of age) must be fed breastmilk or milk products in addition to other food groups for a minimum number of times daily. The guidelines vary by age and breastfeeding status.

A majority of mothers reported that their children aged six months to 23 months were fed breastmilk or milk products. Specifically, 89.3% of six to 23 month olds were breast fed or fed milk products. This rose at Endline to 91.1%, however this increase was not significant (p=0.232). Endline proportions did not vary by exposure to program messages on child nutrition (p=0.994).

There was a significant increase in the proportion of children aged six to eight months of age who were fed the minimum number of food groups. Among these children, 30.4% of them at Baseline were fed the minimum number of food groups. This rose significantly (p=0.001) at Endline to 42.4%. Also, 62.9% of children aged nine to eleven months were fed the minimum number of food groups at Baseline. By Endline however, this rose to 72.9% (p=0.004). Although the proportions of children 12-23 months who were fed the minimum number of food groups rose from 74.0% at Baseline to 77.3% at Endline, this was not significant (p=0.166). Overall, the Baseline survey showed that 63.8% of all children aged six to 23 months were fed the minimum number of food groups, at Endline this rose slightly (p=0.115) to 68.3%. At Endline, 64.8% of mothers with low exposure to program activities fed their infants and young children with the minimum number of groups versus 71.1% of mothers with high exposure to program activities (p=0.266). In contrast however, the proportions of infants and young children who were fed the minimum number of times each day declined from Baseline to Endline. Specifically, 62.6% of infants and young children were fed the required minimum of feedings compared to 51.3% at Endline.

Overall, the proportion of all infants aged six to 23 months fed with all IYCF practices was 39.0% at Baseline and 38.0% at Endline. However, there were age specific differences. The proportion of infants aged six to eight months who were fulfilled all three IYCF practices increased significantly from 29.1% at Baseline to 37.9% at Endline (p=0.009). Among nine to eleven month olds, 38.5% of them fulfilled all three practices at Baseline and this rose to 41.7% at Endline (p=0.204). Among 12-23 month olds, however, proportions fed using all three IYCF practices declined from 42.1% at Baseline to 36.8% at Endline.

Figure 11: Endline Proportion of Infants and All Children Meeting All Three IYCF Guidelines



** Significant at p=.009

The findings show that there are significant changes in feeding practices among participants with younger children, which supports the implication that the parents or caretakers of these children were more likely exposed to the BCS campaign information on infant feeding and nutrition.

6. MALARIA

In 2008, there were 3.2 million reported cases of malaria in Ghana, a startling number considering the population size of 23 million (World Health Organization, 2010). Malaria is hyper endemic in Ghana and accounts for more than 44% of reported outpatient visits and 22% of under-five mortality in Ghana (Roll Back Malaria, 2005). Reported malaria cases represent only a small fraction of the actual number of malaria episodes in the population as the majority of symptomatic infections are treated at home and are not reported. Pregnant women and children under five years of age are considered to be the groups most vulnerable to malaria. According to MICS (GSS, 2011) 35% of all admissions to the hospital in Ghana are attributed to Malaria; the estimates for pregnant women and children under the age of five years are 15% and 38% respectively. Under five mortality from Malaria increased from 22% in 2005 (Roll Back Malaria, 2005) to 30% in 2011 (GSS, 2011) , while in pregnant women, mortality rate was 7% (GSS, 2011).

Several interventions have been developed to prevent malaria among vulnerable groups in Ghana. Insecticide-treated bed nets (ITNs) kill malaria-bearing mosquitoes and create a physical barrier between mosquitoes and humans. Pregnant women are advised to obtain intermittent preventive treatment in pregnancy, which includes administration of an anti-malarial medicine, Sulphadoxine-Pyrimethamine (SP) at monthly visits during the second and third trimester. Artemisinin-combination therapy is used to treat children with fevers and this is an effective treatment that also reduces the emergence of drug resistance. The key targets for the national strategy for malaria control (GSS, 2011) include:

1. Universal coverage with ITNs.
    a. 1 ITN available per 2 persons by 2015 and 100% of household ITN ownership by 2015;
    b. 85% of children under five years and pregnant women, and 80% of the general population, sleeping under an ITN by 2015.
2. Universal coverage of pregnant women receiving intermittent preventive treatment (IPTp) using SP;
    a. 85% of pregnant women receiving at least two doses of IPTp by 2011, and 100% by 2015.

6.1: Ownership of Nets Including Long Lasting Insecticidal Nets (LLIN)

The total number of mosquito nets owned by all households participating increased significantly between the Baseline and Endline survey; during the Baseline, a total of 1153 households owned 1945 nets compared to 1507 households in the Endline survey owning a total of 3205 nets. The mean number of nets owned per household also increased significantly from 1.7 nets at Baseline to 2.1 nets at Endline ($p<.001$).

The majority of households participating in the Endline survey owned at least one LLIN, and this represented a significant increase from 60% at Baseline to 78% during the Endline survey ($p=<.001$). This represents an increase over the percent of households with at least one LLIN (48%) derived from MICS (GSS, 2011) and is closer to the national target of 100% ownership by 2015. LLIN ownership increased significantly for the three Regions at Endline; ownership was highest in the Western Region (83%), followed by the Central Region (79%) and the Greater Accra Region (74%). These estimates show substantial improvements over findings reported by MICS (2011) where household ownership of LLIN was lowest in GAR (25%) followed by the CR (32%) and the WR (42%).

LLIN ownership also increased significantly between the Baseline and Endline surveys for both rural and urban areas ($p<.001$), however, more households in rural areas (88%) owned LLIN compared to households in urban areas (74%). At Endline, the proportion of households with at least one LLIN was higher than estimates reported in MICS (GSS, 2011) for rural area (60%) and urban areas (38%).

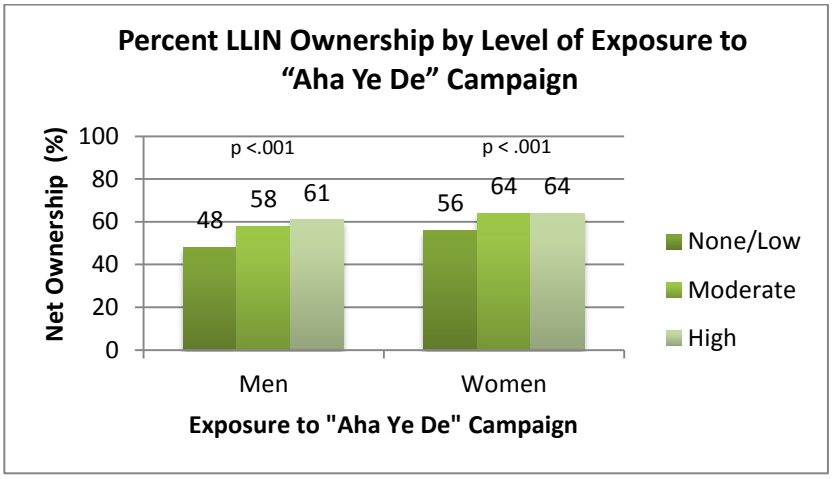
Table 11: Baseline and Endline Ownership of Mosquito Nets

Does your HH have any mosquito nets= yes			
	Baseline (N=1945)	**Endline (N=1942)**	**p value**
% of HH that have nets	%	%	
REGION			
Western	63.4	82.8	0.001*
Central	66.5	78.7	0.001*
GAR	48.9	73.6	0.001*
RESIDENCE			
Urban	51.8	73.7	0.001*
Rural	71.7	88.2	0.001*
TOTAL	**59.6**	**78.4**	**0.001***

* Statistically significant difference

Net ownership was also associated with exposure to the BCS "*Aha Ye De"* Campaign spot that promoted the use of LLINs (p<.001). Figure 11 shows percent increases in net ownership for men increased from 48% among those with no or low exposure to 61% for those with high exposure to the campaign spot. Among women net ownership increased from 56% to 64% for the same groups.

Figure 12: Percent LLIN Ownership by Campaign Exposure



6.2: Utilization of nets

6.2.1: Net use among all participants

At Endline, significantly more participants (37%) reported sleeping under a net the previous night compared to the Baseline (27%, p<.001), which is an increase over MICS estimate of 31% (GSS, 2011). At BCS Endline, 40% of females and 35% of males, compared to 32% of females and 29% of males in MICS (GSS, 2011), reported they had slept under a mosquito net the previous night. There were older participants (42%) 30-40 years of age compared to younger participants (33%) 15-29 years of age who reported that they had slept under a net the previous night.

More participants from the Central (41%) and Western (40%) Regions slept under a net compared to those from the Greater Accra Region (22%). In the MICS report (GSS, 2011), the corresponding percentages were highest for the WR (26%) and lowest for the GAR (13%) however, overall still well below levels derived from the BCS Endline. The reasons most commonly given by both sexes for not sleeping under a net the previous night were: 'don't have a net' (29%); 'nets are too hot' (23%); and 'nets are uncomfortable' (6%). However, there were significant decreases in the prevalence of some of the reasons for non-use between the Baseline and Endline surveys, specifically: 'not having a net' decreased from 42% to 29%; 'nets are not necessary' decreased from 8% to 4%; 'nets are uncomfortable' decreased from 13% to 6%; 'nets are being used by children' decreased from 1% to 0.4%; and 'nets are worn out' decreased from 5% to 1%.

Exposure to the Malaria campaign spot message '*Use Insecticide Treated Nets to prevent Malaria*' was highly significantly associated with sleeping under a net the previous night. 40% of participants who reported exposure to this message also stated that they had slept under a mosquito net the previous night compared to 35% of participants who had not been exposed to this message (p=.009).

Table 12: Net Use in the Previous Night by Exposure to Campaign spot

Did you sleep under a mosquito net last night – YES. By exposure to Malaria message – "*Use Insecticide Treated Nets to prevent malaria*"			
Slept under a net the previous night	**Unexposed %**	**Exposed %**	**p value**
GENDER			
Male	31.9	37.8	0.021*
Female	37.8	41.6	0.131
AGE			
15-29 yrs	30.6	35.0	0.084
30-49	38.9	44.4	0.030*
REGION			
Western	34.7	44.1	0.006*
Central	38.2	44.8	0.059*
GAR	33.1	33.6	0.843
RESIDENCE			
Urban	26.0	30.1	0.041*
Rural	51.6	59.6	0.011*
TOTAL	**35.1**	**39.7**	**0.009***

* Statistically significant difference

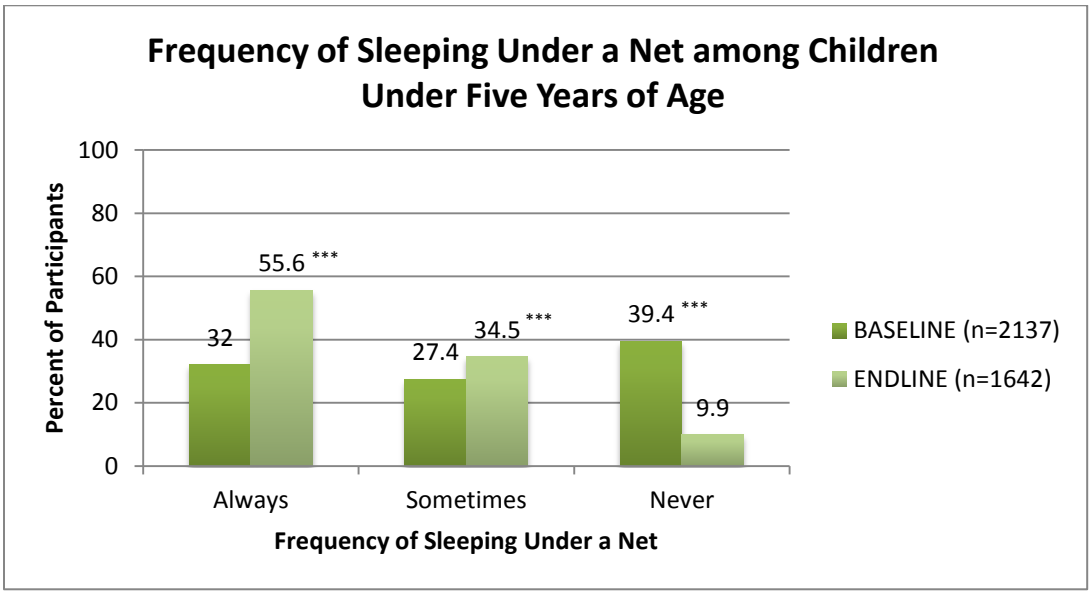
Table 12 also shows that there were significant increases in net use the previous night by exposure to the ITN use campaign spot message among males, older participants, participants from the Western and Central Regions, and by residence. Exposure to the 'Aha Ye De' campaign spot to promote the use of treated nets was also significantly associated with participants sleeping under a mosquito net the previous night (p=.010): Three-fourths of those who slept under a net the previous night reported that they had heard of this campaign spot.

6.2.2: Net use among children under five years of age

Among men and women surveyed from households with children, over half (56%) reported that the children in their households "always" slept under a net and more than a third (34%) stated that the children in their

households “sometimes” slept under a net. Both of these results represented a significant increase from Baseline findings (p<.001) as shown in Figure 13.

Figure 13: Frequency of Sleeping Under a Net among Children Under Five Years of Age



*** p<.001

At Endline, there were more children under five years of age in the BCS project Regions always sleeping under a net compared to 42% of children under the age of five years who slept under a net the previous night reported in MICS (GSS, 2011). In addition, the BCS Endline showed that the proportion of participants who reported children in their households never slept under a net decreased substantially from 39% at Baseline to 10% at Endline (p<.001). The main reason at Endline for children periodically or never sleeping under a net was that the nets were too hot (50%).

There was a significant association between exposure to malaria campaign spots and net use among children in the household. More than half (56%) of participants who were exposed to the BCS malaria campaign spots reported that the children in their households always slept under a net compared to 45% of participants who were not exposed to malaria campaign spots (p=.046).

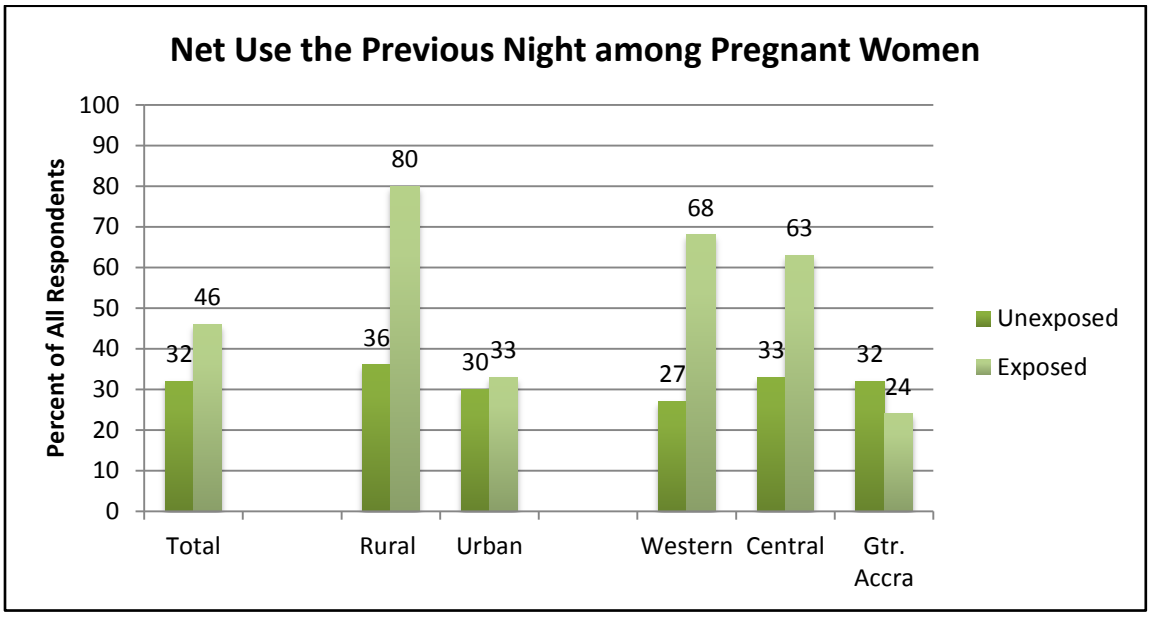
6.2.3: Net use among pregnant women

The Endline survey showed a marginally significant increase in the proportion of pregnant women who reported that they had slept under a net the previous night; 39% of pregnant women reported that they slept under a net the previous night at Endline compared to 31% at Baseline (p=.08). The Endline finding is an increase over 33% reported by MICS (GSS, 2011). In addition, significantly more pregnant women residing in rural areas (55%) reported sleeping under a net the previous night compared to those in urban areas (32%) (p=.03), however there were not differences by age and region sub-groups.

In addition, there were significant increases in Endline compared to Baseline survey findings for age, region and residence subgroups. Specifically, the proportion of younger pregnant women 15-29 years of age who reported they slept under a net the previous night increased from 30% at Baseline to 42% at Endline (p=.017); proportion of pregnant women using nets the previous night in the Western Region increased from 32% at Baseline to 52% at Endline (p<.001) and in the Greater Accra Region from 18% to 29% (p=.016); and although lower than rural estimates, the proportion of pregnant women in urban areas who slept under a net the previous night

almost doubled from 19% at Baseline to 33% at Endline (p=.005). The increase seen at Endline can also be attributable to campaign exposure as significantly higher proportions of pregnant women exposed to the campaign (46%) reported sleeping under a net the previous night compared to unexposed pregnant women (32%).

Figure 14: Proportion of Pregnant Women Who Slept Under a Net the Previous Night



6.3: Malaria prophylaxis during pregnancy

At Endline, among all women 15-49 years who gave birth in the last five years, significantly more women (92%) reported that they had taken any drugs to prevent malaria during their last pregnancy compared to 81% at Baseline (p<.001). There were also significant increases from Baseline across sub-groups for age, region, and residence as shown in Table 13 below:

Table 13: Malaria prophylaxis use during pregnancy

During this pregnancy, did you take any drugs to keep you from getting malaria?			
% yes	Baseline (n=1042)	Endline (n=744)	P values
	%	%	
AGE			
15-29 yrs	81.4	90.1	0.001*
30-49	80.7	93.7	0.001*
REGION			
Western	72.1	91.5	0.001*
Central	87.2	90.4	0.018*
GAR	83.6	93.3	0.001*
RESIDENCE			
Urban	86.5	92.4	0.001*
Rural	72.5	91.3	0.001*
TOTAL	81.0	92.1	0.001*

* Statistically significant difference

There was also a significant association between exposure to malaria prevention messages and taking any drugs to prevent malaria. 92% of participants who were exposure to the malaria prevention messages also took drugs to prevent malaria during their last pregnancy compared to 84% of those who were unexposed and took drugs (p=.015). Among those who reported they had taken any anti-malarial drugs during their last pregnancy, a majority (80%) reported that they took SP compared to 69% reported by the GHS for the year 2011 (GHS, 2011). Table 14 below shows significant differences between Baseline and Endline findings for the use of IpTp during pregnancy by age, region and residence.

Table 14: Use of SP during pregnancy

What drugs did you take? SP/Fansidar/Malafan			
	Baseline (n=845)	**Endline (n=683)**	**P value**
% yes	**%**	**%**	
AGE			
15-29 yrs	36.9	79.0	0.001
30-49	31.9	79.8	0.001
REGION			
Western	23.7	89.8	0.001
Central	60.1	78.1	0.001
GAR	22.9	72.8	0.001
RESIDENCE			
Urban	30.2	77.7	0.001
Rural	42.2	82.4	0.001
TOTAL	**34.4**	**79.5**	**0.001**

* Statistically significant difference

In addition, almost two-thirds of those who took the SP during pregnancy (63.4%) took the recommended two or more doses compared to 53% reported for the year 2011 by the GHS (2011). Table 15 below shows significant increases in the proportion of pregnant women who took at least two doses of SP during their last pregnancy within the last three years, by age, region and residence.

Table 15: Use of recommended dose of SP during pregnancy

Took SP 2 or more times during last pregnancy			
	Baseline (n=845)	**Endline (n=683)**	**P value**
% yes	**%**	**%**	
AGE			
15-29 yrs	31.0	63.0	0.001
30-49	25.6	64.0	0.001
REGION			
Western	21.3	73.8	0.001
Central	50.0	65. 7	0.001
GAR	17.2	54.5	0.001
RESIDENCE			
Urban	23.9	60.7	0.001
Rural	36.4	67.8	0.001
TOTAL	28.3	63.4	0.001

* Statistically significant difference

Similar data from the GHS (2011) on proportions of pregnant women who took two doses of SP by Region for 2011 reported 65% for CR, 45% for WR and 43% for GAR; these estimates are lower than that derived from the BCS Endline survey. However, the BCS estimate of 63% is a bit lower than that reported in MICS (GSS, 2011) which was 67%.

Exposure to anti-malaria campaign spots was significantly associated with pregnant women taking SP two or more times during their pregnancy. More pregnant women (64%) who had been exposed to the campaign spots also reported they took the anti-malarial compared to 49% of pregnant women who had not been exposed to the messages but took anti-malaria medication during their pregnancy.

7. WATER, SANITATION AND HYGIENE

Water, sanitation and hygiene directly affect health, and access to clean and potable water and safe sanitation is considered a fundamental human right that is essential to life, health and dignity. Lack of water and sanitation, and poor hygiene practices pose serious health consequences to all members of the community. Water borne and hygiene related diseases are an important cause of morbidity and mortality especially among children. Children are also deprived of quality education if their schools lack sanitation facilities. Women and children in many resource constrained developing countries often spend significant amounts of time and energy fetching water from unhygienic sources resulting in the promulgation of many preventable water-borne illnesses. The influence of the BCS program activities focused on this sector are described below.

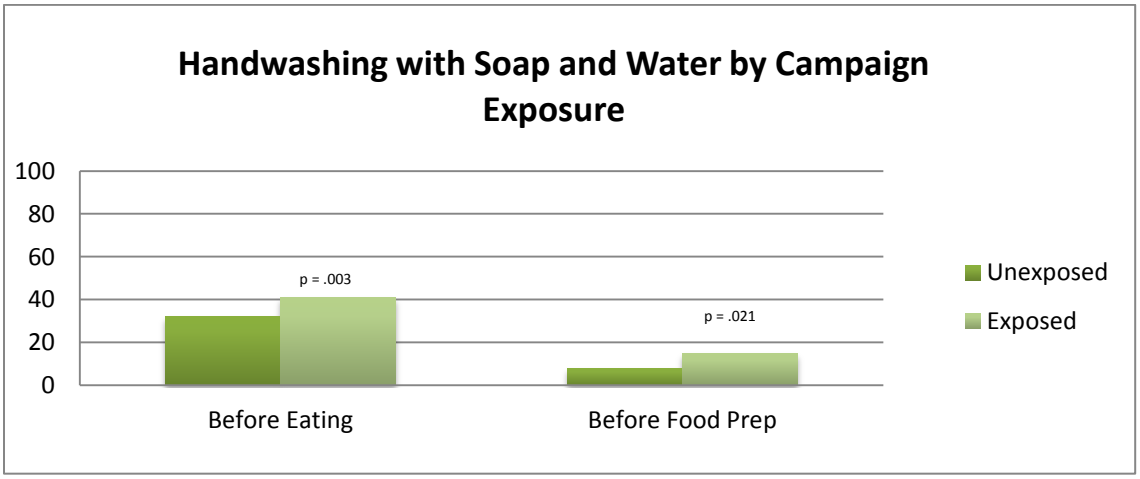
7.1: Hygiene

Hand washing

Handwashing with soap and water at the five critical times (before food preparation, before eating, before feeding a child, after going to the toilet and cleaning a child's buttocks) is a highly effective way to prevent diarrhea and many other infectious and communicable diseases. The BCS project targeted and affected an increase in hand washing among study participants in its focus on water, sanitation and hygiene.

Significant increases in the proportions of participants who washed their hands before preparing food and before eating on the previous day. About one fifth (22.4%) of Baseline survey participants washed their hands before preparing food and this increased to 24.4% at the end of the program (p=0.031). There was also a significant difference in Endline values comparing exposed (24.0%) and unexposed participants to program activities (31.3%, p=0.033). In addition, proportions who washed their hands with soap before preparing food increased from Baseline values of 5.8% to 8.8% seen at Endline (p=0.001). This increase can be credited to the BCS program as those who were exposed to campaign materials were almost twice as likely (15.1%) to wash their hands with soap before preparing food compared with unexposed participants (8.4%, p=0.003).

Figure 15: Hand washing with Soap and Water by Campaign Exposure



Modestly significant increases were also seen among all men and women who washed their hands with soap before eating as Baseline values of 31.0% rose to 32.8% at Endline (p=0.064). This increase is more significant among women (Baseline-29.1% and Endline-32.7%, p=0.010). Likewise, these increases can be attributed to the

BCS project as significantly higher proportions of all participants exposed (41.0%) compared with those unexposed to program activities (32.3%) washed their hands with soap before eating (p=0.021).

Management of water resources

Comparable proportions of Baseline (88.9%) and Endline (88.7%) survey participants treated their water in some way to make it safe for drinking. Significant increases were seen among those who treated their water with alum from 2.3% at Baseline to 8.9% at the Endline (p=0.002).

Increases were also seen among proportions who boiled their water (9.3% to 11.6%) and among those who added bleach, chlorine or alum (1.4% to 2.7%). A desired decrease was also noted from Baseline to Endline among proportions of participants who let their water settle (19.9% at Baseline to 15.8% at Endline). These changes however, were not statistically significant.

Similar proportions of participants at Baseline (91.0%) and Endline (88.7%) stored drinking water in their homes to use for more than a day. An increase in the proportions who stored their water in plastic or steel containers without lids was seen from Baseline values of 3.6% to 4.1% noted at Endline; however this was not statistically significant.

Significantly higher proportions of Endline participants (91.6%) stored their washing water in their homes to use for more than a day compared to Baseline participants (88.3%, p=0.003). There was also a significant increase in the proportions of study participants who stored their washing and cooking water in a plastic or steel container that had a lid. Specifically, Baseline values rose from 76.0% to 79.5% at Endline (p=0.007).

Places where under-fives defecate

Women who had children aged five years and younger were asked where their children's feces were discarded. Comparison of Baseline and Endline values revealed an increase in the proportion of waste discarded in diapers (an increase from 22.3% at Baseline to 25.4% at Endline, p=0.06). There was also an increase in discarding of feces in a public toilet from 1.4% to 1.5% seen at Endline. However, this was not statistically significant (p=0.429).

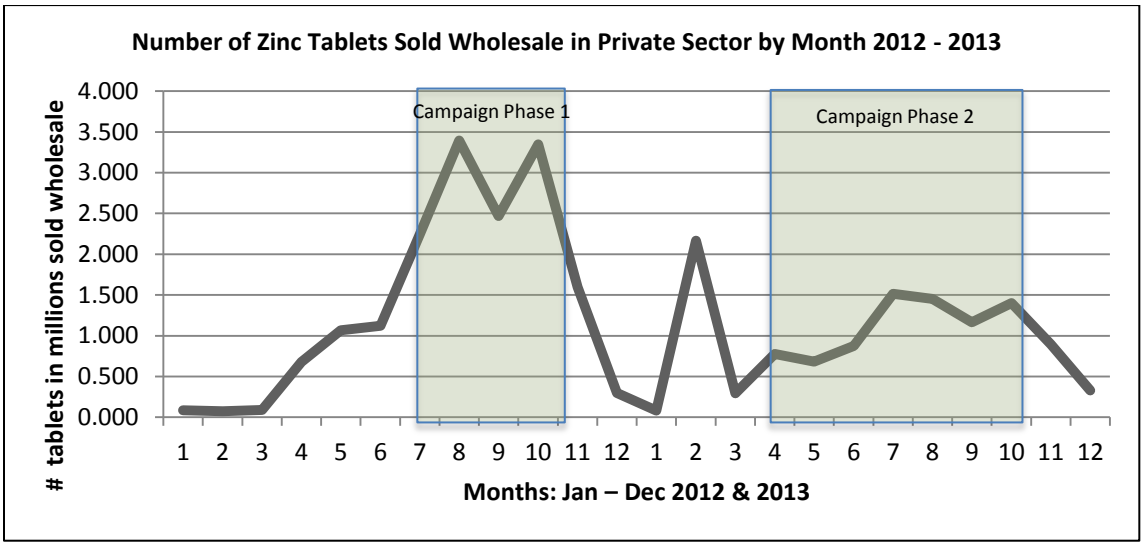
Differences were also seen in children's waste disposal by exposure to BCS program activities. At Endline, higher proportions of participants exposed to BCS water and sanitation campaign components used flush toilets (5.4%), pour or flush latrines (5.4%) and public toilets (2.6%) to discard children's feces compared with participants who were not exposed to BCS water and sanitation campaign components (3.4%, 1.5% and 1.5% respectively) (p>0.05).

Childhood diarrhea

Childhood diarrhea is a leading cause of child mortality in Ghana. While oral rehydration solution (ORS) were widely used in Ghana prior to 2012, zinc tablets for the effective treatment of childhood diarrhea were not available. The Ghana BCS project collaborated with the USAID-funded Strengthening Health Outcomes through the Private Sector (SHOPS) Project and the GHS to launch a communication campaign to create demand for zinc tablets. The campaign promoted the benefits of using both zinc and ORS together to treat childhood diarrhea.

Within two months of the start of the campaign, more than half (54%) of the national population reported seeing the campaign on TV, and 40% had heard it on radio. In addition, private sector wholesale sales of zinc tablets increased dramatically by over 280% during the quarter after the campaign started (about 8.1 million tablets during July-September) compared to the quarter prior to the campaign (about 2.9 million tablets during April-June).

Figure 16: Number of Zinc Tablets Sold Wholesale in Private Sector by Month 2012-2013



The link to the BCS zinc campaign was evident as sales dropped during the period from November 2012-January 2013 at the end of the first phase of the campaign. Retail stocks were replenished in February 2013 in anticipation of the restart of the campaign and the onset of the rains. Once again, sales for zinc tablets increased steadily during Phase 2 of the campaign. Overall, 16,467,000 tablets were sold in 2012 and 11,623,000 tablets were sold in 2013.

8. GENDER AND NORMS

Gender norms describe a set of social and behavioral norms that are considered to be socially acceptable for each sex within a specific culture. They tend to be defined early in childhood and are deeply entrenched throughout adulthood. These norms affect men and women as they perceive health and adopt behaviors in line with their gender roles in the community. Gender inequity has been linked to risk of violence, unplanned pregnancies and STIs/HIV. In most cases, these social and behavioral norms require protracted behavior change communication interventions in order to effect desired changes. In its four years of implementation, the BCS project implemented campaigns directed towards promoting changes in gender norms, individual attitudes and behaviors, and community leadership. The project also maintained the levels of community action indicators seen at Baseline.

8.1: Individual Attitudes

Majority of men and women agreed that women should play a role in community decision making. Among all women only, even though at Baseline, majority (96.4%) agreed that they should play a role in community decision making, this rose significantly to 98% at Endline (p=0.002). Among married or cohabiting men, the high Baseline values of 95.0% who agreed with the above statement increased significantly at Endline with a value of 96.9% (p=0.033).

Similarly, comparable proportions of married or cohabiting men and women agreed that women should play a role in making decisions about the household. Specifically, 95% of men at Baseline and 95.3% at Endline agreed with the above statement (p=0.365). Likewise, among women, 98.2% at Baseline and 98.3% at Endline also agreed that women should play a role in household decision making (p=0.410). Interestingly, Endline values differed significantly among higher proportions of rural dwellers (98.7%) versus urban dwellers (97.2%) who agreed with the statement (p=0.05).

8.2: Community Leadership

There was a significant increase from Baseline to Endline, in the proportions of married and cohabiting participants who agreed that there were women leaders in their community. Among married and cohabiting participants, 60.1% at Baseline and 63.6% at Endline, agreed that there were women leaders in their community (p=0.014). These Endline values also showed differences by residence. Higher proportions of urban dwellers (76.7%) compared with rural dwellers (55.1%) agreed that there were women leaders in their community (p=0.001)

8.3: Community Action

Individual participation in community groups and clubs showed some increase at Endline from Baseline. Higher proportions of Endline participants (5.3%) versus Baseline (3.8%) reported that they belonged to a social welfare group or club (p=0.002). Percentage of participants who stated that they belonged to sport groups, social clubs and youth associations were at best maintained at Endline values of 4.4%, 4.2%, and 3.9% respectively when compared to Baseline values of 4.3%, 4.4%, and 2.6%.

Conclusion

The USAID- funded Ghana BCS project was a comprehensive social and behavior change communication project designed to support the health communication strategies of the GHS at the national, regional and district levels. The project aimed to facilitate the achievement of Ghana's health and health-related millennium development goals and to support behavior change and promote improved health in the Greater Accra, Western, and Central regions of the country.

The BCS project implemented a variety of multi-channel health communication campaigns to promote positive behavior change in the areas of reproductive health and family planning, maternal health, neonatal health and child nutrition, malaria, water and sanitation, and socio-cultural and gender-based norms. The health and communication campaigns included activities spanning mass media (television, radio, bill boards, posters) and internet, to community mobilization and door-to-door health visits.

Results of the evaluation of campaign activities show increases in desired indicators and many significant associations between positive health behaviors and exposure to BCS campaigns. Specific gains realized included the following: knowledge of, quality and use of FP services and methods increased; increased knowledge of recommended pregnancy care and delivery practices, use of malaria prevention interventions increased, notably, regarding net use among pregnant women and children; increased hand washing behaviors occurred before eating and cooking meals; increased use of appropriate disposal methods for fecal material; and increased sales of zinc tablets for the effective treatment of childhood diarrhea. In addition, results showed improvements in attitudes regarding spousal communication around fertility and use of health services, and the role of women in families and communities.

Strategies that aim to follow-on and amplify the successes of the Ghana BCS program and that aim to sustain a healthy family and community environment for the Good Life must be encouraged and supported.

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