

Use of the most significant change technique to evaluate intervention in promoting childbirth spacing in Nigeria



Authors:

Adolor Aisiri¹
Babafunke Fagbemi¹
Oluseyi A. Akintola¹
Oluyemi S. Abodunrin¹
Olajumoke Olarewaju¹
Oluwatofunmi Laleye¹
Anthony Edozieuno¹

Affiliations:

¹Centre for Communication and Social Impact, Abuja, Nigeria

Corresponding author:

Adolor Aisiri,
aaisiri@ccsimpact.org

Dates:

Received: 15 Aug. 2019
Accepted: 05 Dec. 2019
Published: 05 Mar. 2020

How to cite this article:

Aisiri, A., Fagbemi, B., Akintola, O.A., Abodunrin, O.S., Olarewaju, O., Laleye, O. et al., 2020, 'Use of the most significant change technique to evaluate intervention in promoting childbirth spacing in Nigeria', *African Evaluation Journal* 8(1), a426. <https://doi.org/10.4102/aej.v8i1.426>

Copyright:

© 2020. The Authors.
Licensee: AOSIS. This work is licensed under the Creative Commons Attribution License.

Read online:



Scan this QR code with your smart phone or mobile device to read online.

Background: Childbirth spacing (CBS) or Family Planning (FP) methods are considered an essential component of sexual and reproductive health. It refers to the resting period between pregnancies that provides the mother with time to recuperate from pregnancy, labour and lactation. To evaluate the impact of these methods, a storytelling evaluation approach was used.

Objectives: The aim of this study was to assess the outcome of behaviour change communication intervention on demand and uptake of modern CBS methods.

Method: Most significant change story technique was used to evaluate the outcome of behaviour change communication intervention in two north-western Nigerian states. Impact story template was used to collate 57 stories from the field through group discussions and in-depth interviews with women of reproductive age. Transcripts from the group discussions and interviews were analysed using qualitative analytical software.

Results: One story was unanimously selected. The story was about a married 15-year-old with a history of three pregnancies and two live births, who suffered pregnancy complications and miscarriage during her last pregnancy. She had learnt about CBS methods through the community volunteers working on the social and behaviour change communication (SBCC) intervention. As a result, her husband and mother-in-law were convinced and agreed that she take up a modern FP or CBS method from the primary health facility in the community. She eventually took an implant method.

Conclusion: Acceptance and uptake of modern CBS methods in north-western Nigeria has been low, and this is largely because of myths and misconceptions, and religious and cultural beliefs amongst others.

Keywords: Most significant change; Childbirth spacing; Family planning; Centre for Communication and Social Impact; Community volunteers.

Introduction

High maternal mortality rates remain a serious public health challenge. Maternal mortality refers to deaths owing to complications from pregnancy or childbirth (United Nations International Children's Emergency Fund [UNICEF] 2019). Between 2000 and 2017, maternal mortality has declined by 38% worldwide; however, sub-Saharan Africans still suffer from a high maternal mortality ratio (MMR) of 533 maternal deaths per 100 000 live births (UNICEF 2019). In Nigeria, the figures are even higher, with an MMR of 917 maternal deaths per 100 000 live births. Child mortality rates are equally high, with an under 5 mortality rate of 120 per 1,000 live births (National Bureau of Statistics (NBS) & UNICEF 2017).

Family planning (FP) provides many benefits to women and children, including prevention of pregnancy-related health risks, reducing infant mortality, prevention of AIDS, empowerment of women and enhancement of education, reduction in adolescent pregnancies and slowing of population growth (World Health Organization [WHO] 2018). Family planning has been directly linked to improved maternal mortality rates, as it reduces the chance of pregnancy and its related complications, reduces the chance of women undergoing unsafe abortions, delays first pregnancy in young women and improves health outcomes by ensuring well-spaced pregnancies (Ahmed et al. 2012).

Note: Special Collection: 9th AfrEA International Conference 2019.

According to Ahmed et al. (2012), increasing FP use can prevent about 104 000 deaths per year.

Family Planning or childbirth spacing (CBS) refers to the resting period, which provides the mother with time to recuperate from pregnancy, labour and lactation. In 2017, 63% of women were using some form of contraception worldwide; contraceptive use was above 70% in Europe, Latin America, the Caribbean and North America but below 25% in Middle and Western Africa (United Nations [UN] 2017). Childbirth spacing is considered an essential component of primary health care and reproductive health. It plays a major role in reducing maternal, new-born morbidity and mortality as well as transmission of life-threatening diseases (WHO 2017).

The Contraceptive Prevalence Rate (CPR) in Nigeria stands at 17% (NPC Nigeria & ICF International 2018). In the states of Kebbi and Zamfara, approximately 2% of women use modern FP or CBS methods (Lamidi 2015:102).

Various factors can be attributed to the low uptake of FP or CBS methods in Nigeria. They include cultural norms, traditions supporting early child marriage, perception of women as just reproductive beings, the sex of the preceding child, fear of CBS interfering with future conceptions, cost of undergoing modern FP or CBS methods and lack of spousal support (Fayehun, Omololu & Isiugo-Abanihe 2011:79–89; National Population Commission [NPC] Nigeria and ICF International 2013; Pathfinder International 2008; Wolf et al. 2008).

Several interventions have focussed on overcoming these barriers and improving CPR in Nigeria (Durowade et al. 2017:121–128); however, socio-cultural barriers, religious myths and misconceptions still persist and hinder the uptake of modern FP services (Adelekan, Omoregie & Edoni 2014; Durowade et al. 2017:121–128).

One of the interventions deployed to address demand side challenges is the use of social and behaviour change communication (SBCC). This is the use of messages to change behaviours, promoting service utilisation, by positively influencing knowledge, attitudes and social norms (Health Communication Capacity Collaborative [HC3] 2015). To achieve this, community volunteers (CVs), who are community-based resource-oriented persons, were engaged. These CVs were trained to deliver information regarding CBS methods and related services to community members.

The intervention

The Centre for Communication and Social Impact (CCSI) implemented the demand generation strategy with a focus on community mobilisation for malaria across communities under the HC3 funded by United States Agency for International Development (USAID). Towards the end of the project, the scope was expanded for CCSI to implement demand generation strategies to create awareness on CBS or

FP methods aimed at increasing demand and promoting uptake of services across some of the states where the HC3 project was implemented. This study was conducted in two states of Kebbi and Zamfara where the demand generation strategies were implemented for CBS services.

The demand generation activities deployed included house-to-house visits (where trained community members were assigned to visit all houses within the community and provide CBS messages for eligible members), community dialogues (meetings exclusively for men), compound meetings (meetings exclusively for women) and community screenings (where entertainment education videos on FP were screened in the community). Using these activities, messages on CBS methods were conveyed by the trained CVs for educating the community on modern CBS methods and their benefits, debunking myths and misconceptions, and referring target groups to health facilities to take up modern CBS methods. The community activities were conducted by considering to meet cultural expectations. In addition, eligible clients were referred by CVs to the nearest health facility offering CBS services.

The intervention lasted for 6 months in Zamfara and 11 months in Kebbi.

The aim of this study was to assess the outcome of a Social and Behaviour Change Communication (SBCC) intervention on the demand and uptake of modern CBS methods.

Evaluation Question

1. What is the immediate outcome of a SBCC intervention on CBS health-seeking behaviour?
2. What factor(s) influences human description or definition of project impact?

Methods

Study setting

The study was conducted in communities across five Local Government Areas (LGAs) in two north-western states of Nigeria – Kebbi and Zamfara. In Kebbi State, the study was conducted in Arewa, Fakai and Koko LGAs; in Zamfara State, the study was conducted in Talata Mafara and Kaura Namoda LGAs. These are rural communities which prior to project intervention showed little or no acceptance for modern CBS methods.

Study design

A qualitative evaluation approach using both in-depth interviews and Focus Group Discussions (FGDs) to elicit information from the study population and using Most Significant Change (MSC) story collection technique was employed to determine what the community describe as impact.

The MSC story-based approach was developed by Rick Davies. It involves a systematic, transparent and participatory method of collecting and analysing qualitative data describing

change, and then the data underwent a coordinated selection process by relevant stakeholders before being subjected to selection by different stakeholder groups.

The MSC story-based method was used to assess the effects of a SBCC intervention across the communities where the project was implemented. The MSC method is a participatory form of monitoring and evaluation (INTRAC 2017). It uses stories as raw data and enables stakeholders to evaluate the impact of health education from the beneficiary's perspective (Limato et al. 2018:102–110).

Sampling

Participants were purposively selected across the communities where the project was implemented. Participants must have attended at least two community activities and reside in the community to participate in group discussions and in-depth interviews. The sampling was done to ensure that various perspectives including that of men, women, community leaders, health workers and CVs regarding the outcome of intervention was captured.

The participants included married men and women of reproductive age, pregnant women, focal persons for FP or CBS, health facility heads and CVs who implemented the intervention.

Eight FGDs were held in both states, that is, four in each state. In Kebbi, the four FGDs were made up of two separate groups of men and women, whilst in Zamfara, there were three groups of women and one group of men. A total of 68 interviews were conducted in both states. Each FGD group was made up of eight to 10 members, and this differed from one community to another.

Data collection

Story collection was conducted using in-depth and FGDs across both states.

Stories were collected by two trained research staff (facilitator and note taker) and a supervisor in February 2018 through a participatory process at the community. The interviews were gender-sensitive, based on cultural practices; female and male interviewers conducted interviews for female and male groups, respectively. All interviews were conducted in the generally spoken local language (Hausa), except the interviews conducted with the FP focal persons at the LGA and state levels.

Participants from the community were organised into small groups, and using the MSC guide, questions were asked to reflect changes that have happened in the community as a result of the intervention. Each discussion session lasted between 35 min and 50 min.

Interviews were translated and transcribed into English by experienced research assistants, and transcribed data were further verified by the coordinating research team at CCSI office.

Ethical considerations

This evaluation was conducted as part of the project implementation phase in implementing organisation's learning across both states. Formal ethical approval was not requested. However, informed written consent was obtained from all participants before conducting this study. All participants agreed to record their voices during the interviews.

Data analysis

All MSC stories collected were exported and analysed using a qualitative analytical software Dedoose 8.0 by experienced research staff at the CCSI national office. Data analysis was performed in two stages: the first stage involved qualitative analysis of transcripts, which involved export of transcripts and coding of transcripts using Dedoose 8.0 to categorise data into domains using an inductive approach.

The second stage of analysis involved selection of the most significant stories across the five domains. The MSC story selection panel was made up of married men and women from community, community heads, health facility staff, CVs implementing the SBCC intervention, staff of CCSI, external stakeholders from the government, and other local and international organisations involved in FP programming. The selection of MSC story was conducted in four phases.

Phase one

Phase one story selection was conducted at the community level in both states. All 57 (Kebbi-21; Zamfara-36) stories collated from the communities in both states were categorised into five outcome domains and sent back to the states for selection of MSC stories. Phase one story selection panels comprised nine members in both states (men and women, community leaders, health facility staff and CVs). The process was facilitated by CCSI staff in both states. The selection process was participatory – stories were read out to the participants by the facilitator, and participants were engaged in discussions on stories that best reflected the MSC across each domain. The final selection was done by voting: stories with the highest votes were selected and reasons for selection or non-selection were documented. At the end of this phase, two stories were selected in each of the five domains (Kebbi-5; Zamfara-5).

Phase two

Phase two story selection was conducted at the national level. The selection panel comprised six mid-level staff of CCSI who were not directly involved in the implementation of the SBCC intervention. The 10 stories selected from phase one were reviewed and discussed amongst the selection panel. At the end of this phase, five stories were selected, one per domain. Four of these stories were from Kebbi State and the remaining one was from Zamfara.

Phase three

Phase three story selection was also conducted at the national level. Selection panel comprised CCSI staff involved in behaviour change intervention across all CCSI FP programme interventions. Participants did not convene but sent in their responses by mail. The stories with the highest frequency were selected as MSC stories in this phase. The five stories selected from phase two were reviewed and discussed amongst the selection panel. At the end of this phase, three stories were selected (Kebbi-2; Zamfara-1).

Phase four

The final story selection was also conducted at the national level. Selection panel was a six-membered team, including FP experts from the Nigerian Federal Ministry of Health, Association for the Advancement of Family Planning, Population Services International Cambodia (PSI) and CCSI management staff. This phase was coordinated by the research, monitoring, evaluation and learning team. The stories were reviewed and discussed by the panel. The final MSC story was selected from Kebbi State, as shown in Figure 1.

Limitations

The study was conducted using purposive sampling, and this limited the generalisability of the findings. However, participants were selected from various categories, including husbands, women of reproductive age, FP, focal persons and CVs. Also, this approach did not estimate measurable change using quantitative methods. Lastly, the stories were collected one off, making it difficult to see how changes happened over time. Using MSC as a monitoring tool would demonstrate how outcomes evolved during implementation.

Results and Discussion

Initial stories collected from the field were coded and categorised into five domains that best describe the effect of the SBCC interventions as seen in Figure 2.

The evaluation question 1 is: what is the immediate outcome of a SBCC intervention on CBS health-seeking behaviour?

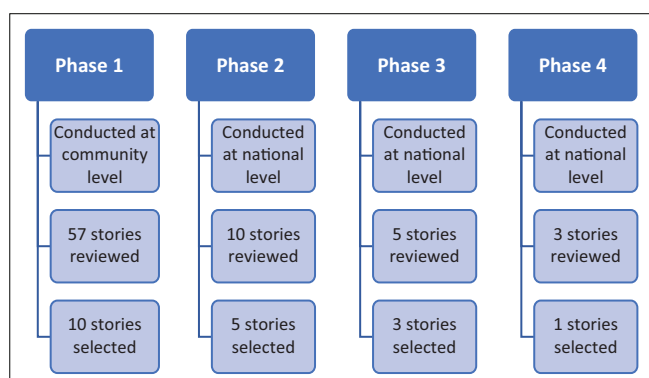


FIGURE 1: Story selection process.

Based on the thematic analysis, five themes demonstrating areas of outcome were identified from the data collected.

The domains reflect stories of change resulting from the implementation of behaviour change intervention to promote demand and uptake of CBS services. The use of MSC was useful in portraying results from the community perspective.

Some stories fall into more than one domain, hence the total exceeds the number of stories collected

In this study, all stories were categorised into five domains (as shown in Table 1): positive behaviour change and acceptance of modern CBS methods, corrected myths and misconceptions, uptake of childbirth spacing methods, healthier children and improved spousal communication.

TABLE 1: Distribution of stories reviewed by the selection panel.

Phase	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Total
1	25	10	42	16	5	64
2	2	2	2	2	2	10
3	1	1	1	1	1	5
4	1	-	1	1	-	3

Positive behaviour changes and acceptance of modern childbirth spacing methods

From the respondent's perspectives, more community members accepted the fact that modern FP is protective. Previously, community members rejected words like 'FP', hence the term 'CBS' was used in the northern states. However, more people are embracing the term and accepting the method. Lack of knowledge about modern CBS methods was largely responsible for non-acceptance. However, more of the community are becoming aware, hence the acceptance:

'I have given birth to 10 children, out of which six are alive and four are dead due to early conceiving during breast feeding, this has resulted to all children not spaced. This is due to lack of

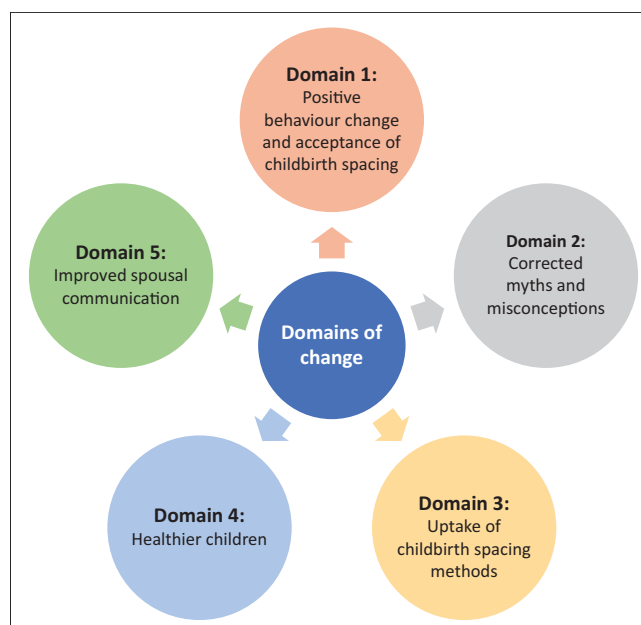


FIGURE 2: Domains of change.

knowledge of child spacing. But after attending compound meeting, I have since taken a method'. (FGD, Women of Reproductive Age, Talata Mafara LGA, Zamfara State)

In Kebbi State, an elderly man accepted a permanent method after having 13 children. It is rare to see men opt for a permanent method. However, following much awareness and education on the benefits of modern CBS methods, the man decided to go for a permanent method.

Findings from studies in Nigeria and elsewhere have demonstrated positive behaviour changes and uptake of modern FP following a SBCC intervention (Abdulrazaq et al. 2014:93–101; Babalola & Vondrasek 2005:427–443; Krenn et al. 2014).

Corrected myths and misconceptions

Myths and misconceptions regarding FP or CBS methods were a common barrier to uptake. Excerpts below, however, illustrate in the words of participants how community SBCC interventions addressed some of the myths and misconceptions:

'I did not support childbirth spacing before due to the misconception that child spacing method causes infertility. My wife has given birth 11 times, she used to conceive after each year of delivering, as a result of that three children died and eight are alive. After attending community dialogue, my wife and I have since chosen a method'. (FGD Men, Kaura LGA, Zamfara State)

'Despite the fact that I had given birth to three children with intervals of one year I refused to go for child birth spacing method because I believed it will make me sterile or have miscarriage ... During my fourth and most recent pregnancy, I suffered a miscarriage and had to be given blood transfusion ... The health provider told me and my husband to consider doing family planning so that I have at least space of two years before pregnancy, but I refused. However, I eventually changed my mind because of the way the community volunteers explained childbirth spacing, eventually I discussed with my husband and they gave me the injection. ... If it was before I would have been pregnant and tired, but now I eat well, and I am very strong'. (FGD, Women of Reproductive Age, Kaura LGA, Zamfara State).

Uptake of childbirth spacing methods

The community strategy was aimed at increasing the uptake of modern CBS methods.

Behaviour change communication interventions have been proven to increase the uptake of modern FP methods (Abdulrazaq et al. 2014:93–101; Babalola & Vondrasek 2005:207–212; Krenn et al. 2014:427–443). Excerpts from respondents illustrate how and why they took up methods:

'I have nine children and they are all grown up. I don't want to be giving birth together with my children and daughter in-laws so I want the permanent method'. (FGD, Women of Reproductive Age, Arewa LGA Kebbi State).

'Aishatu Mohammed lives in Besse, she is a mother of 12 children. She has many children because she did not have knowledge on child spacing, she would have preferred less children. She did not want to have more children and was

fortunate to be in one of the compound meetings where she was exposed to childbirth spacing methods and where to access the commodities; she wasted no time in a method – Sayana Press. Although she prefers the implant method, which was unavailable at the facility, she opted for the available method until the implant was in stock. (IDI, Female FP Focal Person, Koko LGA, Kebbi State).

Healthier children

One of the benefits of CBS methods experienced by some community members is the delivery and nurturing of healthier children. Respondents stated from personal experiences how uptake of FP or CBS methods have led to healthier children and prevented early child death in the community:

'I met aliyu who had two children, there was no space between his first and second children who were always falling ill. I met him during one of the house to house visit and advised him to go for childbirth spacing. Aliyu's wife has now given birth to two additional children and they are well spaced with a three-year gap between them because she uses childbirth spacing and they now live as a happy family'. (IDI, Male Community Volunteer, Koko LGA, Kebbi State).

Improved spousal communication

Besides promoting demand and uptake of modern CBS methods, SBCC interventions have been shown to improve discussions and intimacy amongst couples (Hutchinson & Meekers 2012). Excerpts from respondents in this study support this finding:

'The issue of non-spacing has seriously affected me due lack of awareness, it got to the point I wanted to divorce one of my wives thinking it's going to be a relief to me. However, with the intervention of HC3 I now know how to plan well for pregnancy and avoid unplanned pregnancy. I am now living happily with my wives'. (FGD Men, Talata Mafara LGA, Zamfara State).

I have a friend called Umaru who collected a referral from me. He explained to me that after his wife used the implant she now looks very beautiful and his son is very healthy. (IDI, Male Community Volunteer, Koko LGA, Kebbi State).

Evaluation question 2

The evaluation question 2 is: what factor(s) influences human description or definition of project impact?

The following reasons for story selection were identified across the four phases:

- empathy and/or sympathy for the storyteller, especially in the final story selected, as the participants could identify with the pain and suffering that she had experienced as a young teenage mother
- salient issues affecting the community, such as divorce, polygamy and abortion, were discussed by the story tellers which many of the participants could relate with
- changing social norms in a traditional Hausa society such as open discussions about reproductive health and spousal discussion about CBS which were previously not acceptable

- improved overall well-being of the project beneficiaries
- several key players were involved in the story, for example, a religious leader, older women and men who can advocate for the use of CBS methods.

Reasons for selection of stories have been archived; however, for brevity only the third and last phases were documented in this article. In phase three of the MSC story selection, the three stories were chosen.

Story 3: It described a man with two wives who had 14 children altogether. He had tried several local herbs for FP or CBS all of which had failed. After he attended a community dialogue, he gained knowledge on modern FP or CBS and encouraged his wives to take up these methods. He was also encouraged by the number of men who attended the meeting and was surprised by the open discussions and experiences shared by men relating to reproductive health and CBS.

Reason for story selection: The story depicts the importance of male involvement in FP. It starts to show that FP is openly discussed in the community amongst men.

Story 29: A 15-year-old with three pregnancies and two conceptions, she had suffered a miscarriage in her third pregnancy. After an encounter with a CV, she approached her husband on FP or CBS; he permitted her to take up a method. Her husband felt ashamed about her predicament; hence, she was accompanied to the health facility by her mother-in-law.

Reason for story selection: It is a compelling story that shows behaviour change in both the young girl and her mother. It also shows that the mother-in-law was willing to support their decision. It is also interesting to note that she made the decision to use FP not just in the interim but in the long run.

Story 39: A CV narrated the story of a man with four children. His first two children were always falling ill because of no spacing. The man has now accepted modern FP or CBS, and his next two conceptions were well spaced and healthy.

Reason for story selection: The man had his first two children really close; after he got counsel, he had two other children that were properly spaced and healthy.

In the final MSC phase, the panel selected story 29, the excerpt of which is given below.

Story 29

The story of Naima (15 years old) with three conceptions is as follows.

Naima is a 15-year-old mother of two who is married to a 25-year-old secondary school leaver who now practises farming. She observed her first menstrual period in her husband's house and did not see it the second time because she conceived immediately. Her first child is 2 years and 3 months old, whilst the second is 1 year and 2 months old.

Three months into her third pregnancy, she suffered a miscarriage and was in dire need of medical attention. In her words:

'When I got pregnant for the first time, I suffered a lot. My legs and whole body got swollen but my husband did not allow me to go for antenatal care (ANC). When I went into labour, it took me 2 days, but I was unable to deliver the baby; the pain I suffered during this time was so much. This made my family to take me to the hospital and the doctor was very angry. He told my parents that since I was too young, I was supposed to be going for ANC. I was almost operated upon, but Allah helped me, and I delivered by myself'.

She narrated how she came to hear about FP:

'When these people (the CVs) came to our village and told us about childbirth spacing, I went and told my husband about it and he permitted me to go and take the implant method. That is why I am here (health facility) and I will continue childbirth spacing in the future'.

Her husband felt guilty about her predicament; thus, he asked his mother to accompany her to the hospital. When asked at what age she would have preferred to get married, she answered: '18 years'.

The *Naima* story was selected based on the following:

- The story resonates with findings across all parts of Nigeria beyond the north. Child marriage has been documented in the southern, eastern and western parts of Nigeria.
- It supports the policy directive of the Federal Ministry of Health, which states that the family is to ensure all female children are prevented from giving birth until they reach 18 years of age.
- The story cuts across the five identified outcome domains.
- The story can be used as an advocacy tool to promote FP or CBS.
- The story highlights the importance of spousal and family support towards adopting positive health-seeking behaviour.
- The story is emotional: it depicts the experiences of young girls who are forced into early marriage in the north and other parts of Nigeria.

Conclusion

The purpose of this study was to identify the immediate outcome areas of the FP SBCC intervention as well as to identify the factors that influence human definition of project impact. Five domains of change reflecting programme outcomes were identified. Each of these themes depicts aspects that programme beneficiaries deemed to be the benefit of this programme, which are positive behaviour change and acceptance of modern CBS methods, corrected myths and misconceptions, uptake of CBS methods, healthier children and improved spousal communication. Unlike other procedures of MSC, such as the process described in Limato et al. (2018:102–110), where domains of change are predefined, these domains were inductively identified.

The story selection process was participatory ensuring that participants were selected across different levels of project implementation. The value gained from the MSC story selection process is that it involves persons who would otherwise have been excluded from the evaluation process, especially the beneficiaries and the CVs, and the process provided participants with a say in the evaluation process.

This study provides insight into the key areas where family planning demand generation activities affect the lives of beneficiaries. It also shows that the goal of SBCC, which is to promote positive behaviours, was achieved.

Exploring the use of MSC in evaluating the SBCC intervention in FP or CBS methods has helped to understand beneficiaries and stakeholder's perspective of the project impact, and this has helped project implementers in decision-making.

Acknowledgements

The authors are grateful to the Health Communication Capacity Collaborative (HC3) project, Centre for Communication and Social Impact staff and community volunteers, who implemented the demand generation component, health workers, community leaders and the panellists who participated in the MSC story selection process.

Competing interests

The authors declare that they have no financial or personal relationships which may have inappropriately influenced them in writing this article.

Authors' contributions

A.A. conceived this study and developed its concept. O.L. and A.A. conducted qualitative analysis. O.L., O.O. and A.A. came up with the first draft, and all the authors reviewed the manuscript

Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Data availability statement

Data are available from the authors, upon request.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

References

- Abdulrazaq, A.G., Kabir, S., Mohammad, N.S. & Suleiman, I.H., 2014, 'The effect of educational intervention on family planning knowledge, attitude and practices among married women in a military barrack in Northern Nigeria', *African Journal of Reproductive Health* 18(1), 93–101.
- Adelekan, A., Omoregie, P. & Edoni, E., 2014, 'Male involvement in family planning: Challenges and way forward', *International Journal of Population Research* 2014, Article ID 416457, 9 pages. <https://doi.org/10.1155/2014/416457>
- Ahmed, S., Li, Q., Liu, L. & Tsui, A., 2012, 'Maternal deaths averted by contraceptive use: An analysis of 172 countries', *The Lancet* 380(9837), 111–125. [https://doi.org/10.1016/S0140-6736\(12\)60478-4](https://doi.org/10.1016/S0140-6736(12)60478-4)
- Babalola, S. & Vonrased, C., 2005, 'Communication, ideation and contraceptive use in Burkina Faso: An application of the propensity score matching method', *BMJ Sexual & Reproductive Health* 31(3), 207–212. <https://doi.org/10.1783/1471189054484022>
- Durowade, K.A., Omokanye, L.O., Elegbede, O.E., Adetokunbo, S., Olomofe, C.O., Akinyosoye, D.A. et al., 2017, 'Barriers to contraceptive uptake among women of reproductive Age in a semi-urban community of Ekiti State, Southwest Nigeria', *Ethiopian Journal of Health Science* 27(2), 121–128. <https://doi.org/10.4314/ejhs.v27i2.4>
- Fayehun, O.A., Omololu, O.O. & Isiugo-Abanihe, U.C., 2011, 'Sex of preceding child and birth spacing among Nigerian ethnic groups', *African Journal of Reproductive Health* 15(2), 79–89.
- Health Communication Capacity Collaborative (HC3), 2015, *What is SBCC?* viewed 08 February 2019, from <https://healthcommcapacity.org/hc3resources/what-is-sbcc/>.
- Hutchinson, P.L. & Meekers, D., 2012, 'Estimating causal effects from family planning health communication campaigns using panel data: The "Your health your wealth" campaign in Egypt', *PLoS One* 7(9), e46138. <https://doi.org/10.1371/journal.pone.0046138>
- INTRAC, 2017, *Most significant change*, viewed 08 February 2019, from <https://www.intrac.org/wp-content/uploads/2017/01/Most-significant-change.pdf>.
- Krenn, S., Cobb, L., Babalola, S., Odeku, M. & Kusemiju, B., 2014, 'Using behaviour change communication to lead a comprehensive family planning program: The Nigerian Urban Reproductive Health Initiative', *Global Health: Science and Practice* 2(4), 427–443. <https://doi.org/10.9745/GHSP-D-14-00009>
- Lamidi, E.O., 2015, 'State variations in women's socioeconomic status and use of modern contraceptives in Nigeria', *PLoS One* 10(8), e013517. <https://doi.org/10.1371/journal.pone.0135172>
- Limato, R., Ahmed, R., Magdalena, A., Nasir, S. & Kotvojs, F., 2018, 'Use of most significant change (MSC) technique to evaluate health promotion training of maternal community health workers in Cianjur district, Indonesia', *Evaluation and Program Planning* 66, 102–110. <https://doi.org/10.1016/j.evalprogplan.2017.10.011>
- National Bureau of Statistics (NBS) and United Nations International Children's Emergency Fund (UNICEF), 2018, *Multiple Indicator Cluster Survey*.
- National Population Commission (NPC) Nigeria and ICF International 2014, *Nigeria Demographic and Health Survey 2018*, NPC and ICF International, Abuja.
- Pathfinder International, 2008, *Reproductive health knowledge and practices in Northern Nigeria; challenging misconceptions*, viewed 08 February 2019, from <http://www.pathfinder.org/publications/reproductive-health-knowledge-practices-northern-nigeria-challenging-misconceptions/>.
- UNICEF, 2019, *Maternal mortality*, viewed 06 February 2019, from <https://data.unicef.org/topic/maternal-health/maternal-mortality/>.
- United Nations (UN), 2017, *World contraceptive use 2017* (POP/DB/CP/Rev2017), Department of Economic and Social Affairs, Population Division, New York, NY.
- Wolf, M., Abubakar, A., Tsui, S. & Williamson, N.E., 2008, *Child spacing attitudes in northern Nigeria*, FHI, Arlington, VI.
- World Health Organisation, 2017, *Sexual and reproductive health*, viewed 28 March 2018, from https://www.who.int/reproductivehealth/topics/family_planning/contraceptive-access-women-and-girls/en/.
- World Health Organisation, 2018, *Family Planning/Contraception*, viewed 01 February 2019, from <https://www.who.int/news-room/fact-sheets/detail/family-planning-contraception>.