

ORIGINAL RESEARCH ARTICLE

Exploring the effects of programmatic intervention on family planning health literacy and contraceptive utilization in eastern Uganda

DOI: 10.29063/ajrh2022/v26i4.2

Kelsey E. Brown¹ and Alison S. Hayward²

Warren Alpert Medical School of Brown University, Providence, RI, USA¹; Department of Emergency Medicine, Division of Global Emergency Medicine, Brown University Alpert School of Medicine, Providence, RI, USA²

***For Correspondence:** Email: kelsey_brown@brown.edu; Phone: 630-864-8587

Abstract

Uganda Village Project (UVP) implemented the Healthy Village Initiative (HVI) and conducted household surveys to assess the effects of the initiative. This data adds to the limited body of knowledge regarding the efficacy of community health interventions for reproductive health in rural east Africa. As part of the HVI, UVP surveys rural Ugandan households before and after a 3-year programmatic intervention to assess changes in family planning health literacy, and contraception utilization. Results showed that there was an increase in contraceptive utilization, an increase in family planning health literacy, and a decrease in unmet need for contraception. Community-based outreaches led by community members and health workers can contribute to improving access to contraception, utilization of contraception, and health literacy surrounding contraception. (*Afr J Reprod Health* 2022; 26[4]: 15-21).

Keywords: Contraception, education, health literacy, Uganda, rural, family planning

Résumé

L'Uganda Village Project (UVP) a mis en œuvre l'Initiative Villages Sains ("Healthy Villages Initiative" ou HVI) et a mené des enquêtes auprès des ménages pour évaluer les effets de l'initiative. Ces données s'ajoutent au corpus limité de connaissances concernant l'efficacité des interventions de santé communautaire pour la santé reproductive en Afrique de l'Est rurale. Dans le cadre du HVI, l'UVP enquête sur les ménages ruraux ougandais avant et après une intervention programmatique de 3 ans pour évaluer les changements dans les connaissances en matière de santé de la planification familiale et l'utilisation de la contraception. Les résultats ont montré qu'il y avait une augmentation de l'utilisation des contraceptifs, une augmentation de la littératie en matière de planification familiale et une diminution des besoins non satisfaits en matière de contraception. Les campagnes de sensibilisation communautaires dirigées par des membres de la communauté et des agents de santé peuvent contribuer à améliorer l'accès à la contraception, l'utilisation de la contraception et les connaissances en matière de santé entourant la contraception. (*Afr J Reprod Health* 2022; 26[4]: 15-21).

Mots-clés: Contraception, éducation, connaissances en matière de santé, Ouganda, rural, planification familiale

Introduction

The 2016 Ugandan Demographic and Health Survey (DHS) reports that the actual fertility rate (5.4) is 1.1 children higher than the wanted fertility rate (4.3)¹. There is an estimated 30% unmet need for family planning methods in rural Uganda¹. Unmet need for contraception is defined as the proportion of women who want to delay their next pregnancy but are not currently using contraception. The misconceptions around

contraception, or low family planning health literacy (FPHL), represent one driver of unmet need for contraception in Uganda. The DHS also notes that only 22% of women in Uganda are knowledgeable about the fertile period during the ovulatory cycle¹. Previous studies have shown that misconceptions about side effects and long term effects of contraception are commonly shared among women and their partners in Uganda²⁻⁵. Previous studies have shown that underutilization of contraception and fear about side effects are best

addressed through community outreaches that increase access to family planning education and service provision⁶⁻⁸.

It is estimated that only 48% of the demand for family planning is currently satisfied in Uganda, which suggests a need for increased family planning interventions⁹. In response to this need, Uganda Village Project (UVP) partnered with villages and health centers in the Iganga district to implement the Healthy Village Initiative (HVI). The Healthy Village Initiative implements a variety of basic public health and educational interventions in the following content areas: malaria, obstetric fistula, HIV, sanitation, and family planning. The HVI surveyed village households at baseline, implemented a 3-year service provision and educational interventions and surveyed households again at program completion (endline) to assess changes in health literacy and behaviors¹⁰. A visual representation of the Family Planning and Reproductive Health logic model can be found in Figure 1. The full theory of change for UVP's HVI can be found in Appendix A.

This study aimed to evaluate the effects of the UVP HVI's family planning interventions on contraception utilization and FPHL in rural Uganda. We hypothesized that the family planning outreach program would not only increase FPHL and contraceptive utilization but also decrease unmet need for contraception.

Materials

Study population

Our study population was households in at need villages in the Iganga District. At-need villages were identified in conjunction with the Iganga District Health Office, where latrine coverage was used as a proxy for community public health levels. The total sample size for all the Healthy Village Initiative was 1050 households from 70 different villages. 15 households were chosen randomly to be surveyed from each village. This study looks at 799 household level surveys from five of villages that were surveyed between 2016 and 2019.

Data collection and management

Trained local Ugandan and international UVP volunteers teams participated in the Healthy Village

Initiative household visits. While there are cross-cultural considerations and biases that could be introduced by the presence of an international volunteer, the surveys themselves were administered by local Ugandans, who have an intimate understanding of cultural context. The surveys were conducted in Lusoga after being translated from English, and re-translated from Lusoga to English to ensure accuracy of translation. Data collection time varied from household to household but averaged between 20-30 minutes. Surveys were initially recorded on paper and then entered into a secure spreadsheet for data analysis. To maintain high quality data and prevent data loss, UVP secured contracts with local data entry clerks who were trained in how to deal with illegible, missing and otherwise non-standard data.

Each household was asked about the following family planning topics: age, number of children, family planning knowledge questions, whether they were currently using contraception and if not, whether they would like to be using contraception. If they indicated that they were not currently using contraception, but would like to be, they were considered to have an unmet need for contraception. The family planning knowledge questions were as follows:

1. Do modern birth control methods (*such as pill, implant, Depo shot, IUD*) cause cancer? (Yes or No)
2. The Depo shot can last for more than three months. (True or False)
3. The Health Centre recommends at least two year spacing between each child (True or False)

Recruitment and ethical considerations

Baseline surveys were conducted in June 2016. The endline surveys of each baseline survey were conducted in 2019, respectively, after 3-year programmatic intervention was conducted. Community leaders from 2016 baseline villages provided the UVP study team with a list of households in their village. UVP teams assigned all households a number and then used a random number generator to choose houses to survey⁷. 509 households consented to participate in the baseline survey and 290 households consented to participate in the follow up survey. Data on households that declined participation in the survey was unavailable for this analysis. The data collection protocol was

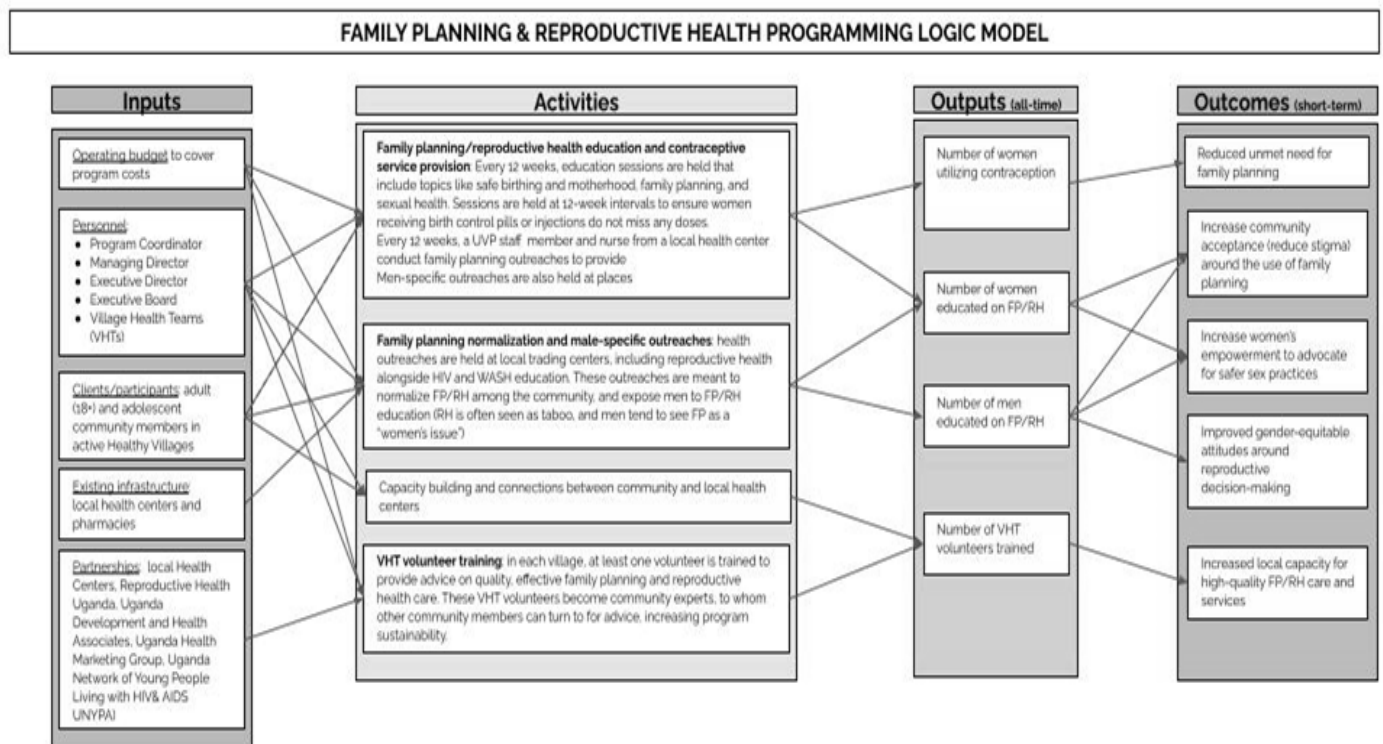


Figure 1: Logic model for the family planning and reproductive health programming

approved by the Uganda National Council of Science and Technology (Research Reference Number: SS3634) and the secondary analysis protocol was approved as IRB exempt by the Brown University Institutional Review Board (IRB# 00000556). The study was determined to be exempt due to its use of de-identified data, which was initially collected for internal quality improvement use by the nonprofit organization. Initial data collection was conducted in accordance with relevant guidelines and regulations outlined by Uganda National Council of Science and Technology.

Baseline, programmatic intervention and follow-up survey

Although the survey encompasses many different modules, including but not limited to malaria, prevention, water sanitation and family planning, this study solely focused on the changes in responses within the family planning module pre and post-intervention. The family planning module was completed by the female household head and collected information on the age of the female household head, family planning health literacy (FPHL), number and methods of children birthed, birth control utilization, number of births in the last 12 months, location of births and number of visits to an antenatal care center. The study outcomes focused on in this study include family planning health literacy, utilization of contraception, unmet need for

contraception and the primary reason for not using contraceptive methods. All households in the four villages, regardless of participation in the baseline survey, were invited to participate in UVP's village-based family planning outreaches. A UVP staff member, a village family planning representative and a local health center nurse co-led all family planning outreaches. Each outreach included an educational session followed by nurse-led one-on-one contraception counseling to interested women. After each counseling session, the nurse would administer the contraception method of the client's choice. Outreaches were held every three months to ensure that clients could maintain continuous contraceptive use. Numbers of community members attending UVP's family planning (FP), adolescent reproductive health (ARH) and men's outreach programs are listed in Table 1. The ARH program began in 2017 and the men's program in 2018, clients served in these years are provided accordingly.

Data analysis

The analysis involved descriptive bivariate and multivariate analysis. Bivariate analysis, including chi-squared and paired sample t-tests were used to compare the baseline (pre-intervention) and endline (post-intervention). Multivariate logistic regression was utilized to look at what contributed to the utilization of contraception and for experiencing

Table 1: Annual total number of clients served by UVP's reproductive health programs, 2016-2019

Year	FP Program Unique Clients	FP Program # Doses	Community Education Session Attendance	FP ARH Outreach	Men's Outreach
2016	276	354	717	N/A	N/A
2017	282	502	2,192	1,773	N/A
2018	87	325	1,315	4,131	794
2019	939	925	2,076	1,936	700

unmet need for contraception. All statistical analyses were conducted using StataSE software 17¹¹.

Results

At baseline in 2016, 485 female heads of the household completed the family planning module. The mean age of female head was 38.5 and the average number of children per household head was 5.9. 35.2% of women reported currently using some form of modern contraception. Unmet need for contraception was 44.2%. The most cited reason (33.6%) for not using birth control methods was fear of side effects (Figure 2). The percent correct for each individual family planning health literacy question was 29%, 50% and 91% for questions 1, 2 and 3 respectively. Combined average percent correct of all family planning health literacy questions was 58% (Figure 3).

At endline in 2019, 287 female heads of the household completed the family planning module. Average age was 37.4 and average number of children per household head was 5.6. 41.9% of women reported using some form of modern contraception and unmet need for contraception was 26.8%. Only 8.9% of women cited fear of birth control's effects as their reason for not utilizing birth control (Figure 2). The percent correct for each individual family planning health literacy question was 79%, 55% and 97% for questions 1, 2 and 3 respectively. Combined average percent correct of all family planning health literacy questions was 80% (Figure 3).

The percentage of women using contraception increased by 6.7% from baseline to endline. Despite this increase, being in the endline group was not shown to be a driver of contraception use (RR: 0.68, 95% CI: 0.13-1.14). Answering the first family planning health literacy question correctly (Do modern birth control methods (*such as pill, implant, Depo shot, IUD*) cause cancer?) had a higher odds of utilizing modern birth control

(RR: 2.41 95% CI: 1.45-4.01). Answering the other two questions correctly did not impact the odds of utilizing contraception [(Q2: RR:0.89, 95%CI: 0.57-1.41) (Q3: RR:1.74, 95%CI: 0.61-4.91)]. The percentage of unmet need for birth control decreased by 17.4% from baseline to endline. Neither family planning health literacy nor being a part of the endline group drove changes in unmet need for birth control.

Discussion

The objective of this study was to evaluate the effects of the UVP HVI on contraception utilization and FPHL in rural Uganda. The study found that after the programmatic intervention, household head FPHL scores were higher, more women were using contraception and unmet need for contraception decreased. The study also found that the average number of children per female household head, at both baseline (5.92) and endline (5.98), is higher than the national total fertility rate (5.4)¹. Similarly, this study found that the unmet need for birth control (44.2%) was higher than the national estimate for unmet need in rural areas (30%)¹.

The cumulative endline FPHL scores were higher than the baseline scores. Answering the question "Do modern birth control methods (*such as pill, implant, Depo shot, IUD*) cause cancer?" correctly was correlated with higher odds of utilizing birth control. Answering this question correctly signified that the participant knew that modern contraception did not cause cancer. This correlation points to the importance of debunking misconceptions about the side effects of contraceptives. Misconceptions about side effects are commonly cited in the literature as a barrier for not using modern contraception^{2-4,12}.

This study found that at the endline, more women were using contraception and that the unmet need for contraception had decreased. While these changes cannot be wholly attributed to the effects

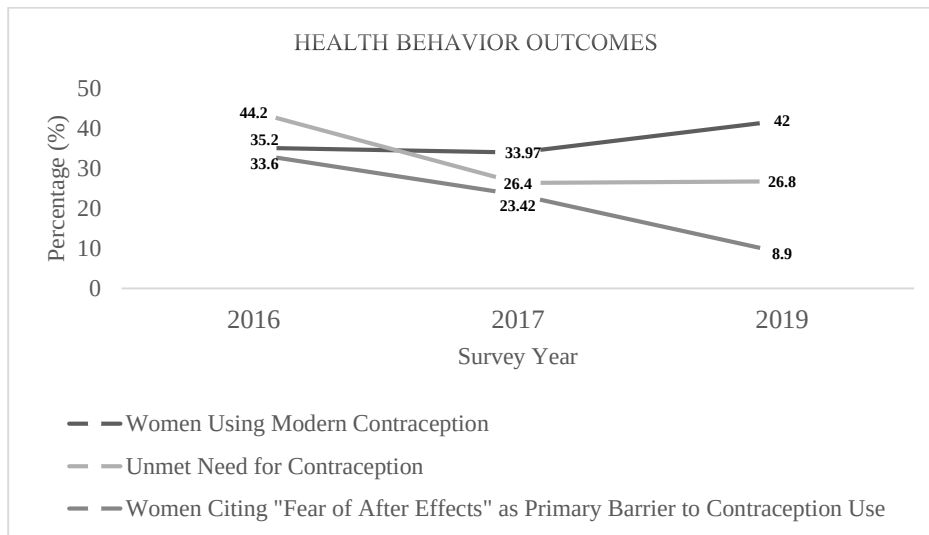


Figure 2: Contraception use, unmet need for contraception and fear around using contraception

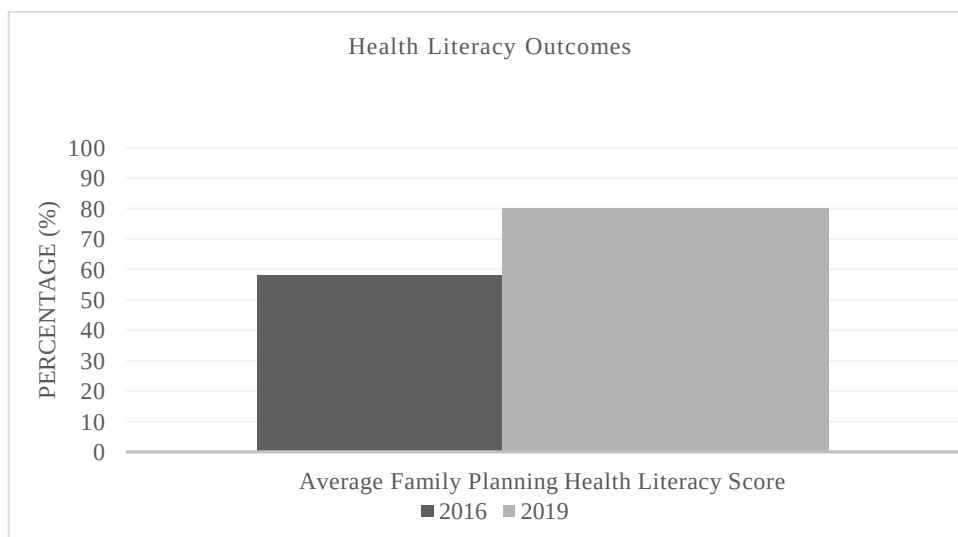


Figure 3: Family planning health literacy outcomes

of the UVP Healthy Village Initiative, these findings are echoed in the literature on other community-based initiatives conducted in various populations across Sub-Saharan Africa^{6-8,13-15}. Given that the HVI program directly provided contraception to hundreds of women in target villages, it is clear that the intervention did succeed in meeting a portion of the unmet need for these services. Being a part of the endline group did not have a direct influence on the odds of contraception use. This correlation was likely not able to be drawn because there are a variety of factors potentially contributing to the choice to use contraception that are outside of the purview of the intervention such

as male partners' views, desire to have more children and other cultural or religious reasons^{6,16}.

Limitations

This study uses data gathered as part of UVP Healthy Village Initiative in rural eastern Ugandan communities through direct household interviews, where other surveys or data collection are rare, making it a unique contribution to existing literature. While we were not able to show that post-intervention or endline villages had higher odds of contraception utilization, other positive study outcomes were found. However, these positive

outcomes must be considered alongside the study limitations.

One limitation of this study is the inability to attribute its outcomes directly to the intervention. Without collecting concurrent data from a control population, it is hard to distinguish whether the changes seen after three years were the result of the intervention or not. While UVP does collect data on control villages for some aspects of the HVI, the survey questions are different and thus could not be analyzed in comparison to the 2016-2019 data. Another limitation to this study could be the method of randomly surveying houses, which did not ensure the sample populations were demographically equivalent to one another. Another factor affecting differences in demographics such as mean female household head age at baseline and follow-up is that over the study period, some families move in and out of target villages to different locations. A potential bias in the sampling method of the study is that daytime household surveys are less likely to reach women who work outside of the home and thus, this demographic would be underrepresented in the study sample.

Conclusion

After three years of community health education interventions and family planning outreach events as part of the UVP Healthy Village Initiative, cumulative family planning health literacy scores were higher, more women were using contraception and the unmet need for contraception had decreased. Although positive changes were seen in the community, the results of this study are not able to conclusively state to what degree the HVI initiatives were the cause and therefore cannot prove the efficacy of this intervention. Further quantitative and qualitative studies should be conducted to better understand how these community-based outreach interventions impact family planning health literacy, the use of contraception and the amount of unmet need for contraception.

Acknowledgements

We would like to thank Kelly Child, Executive Director of Uganda Village Project, and Uganda Village Project staff Edmund Okiboko, Patrick

Tulibagenyi, Loy Tumusiime, Josephine Asio, Maria Gorret Nampiima and Evelyn Nabwire.

Competing interests

Dr. Alison Schroth Hayward serves as the volunteer assistant chair of the board for Uganda Village Project, otherwise, the authors have no competing interests to declare. This work was supported by the Positive Action for Children Foundation and NIH/NIAID [grant R25AI140490].

Contribution of authors

KEB contributed to project conception and design, ethical approval, data analysis, manuscript preparation and manuscript revision. ASH contributed to project conception and design, manuscript preparation and manuscript revision. Data were collected by UVP staff as a part of ongoing monitoring and evaluation. All authors approve of the above manuscript.

References

1. Uganda Bureau of Statistics (UBOS) and ICF. *Uganda Demographic and Health Survey 2016*.; 2018.
2. Potasse MA and Yaya S. Understanding perceived access barriers to contraception through an African feminist lens: a qualitative study in Uganda. *BMC Public Health*. 2021;21(1):267. doi:10.1186/s12889-021-10315-9
3. Kabagenyi A, Reid A, Ntozi J and Atuyambe L. Socio-cultural inhibitors to use of modern contraceptive techniques in rural Uganda: a qualitative study. *Pan Afr Med J*. 2016;25. doi:10.11604/pamj.2016.25.78.6613
4. Nakato L. Have you heard the rumour? *Afr Women Health Safe Mother Mag*. 1994;2(3):23-27.
5. Nuwasiima A, Watsemba A, Eyapu A, Kaddu P and Loiseau J. Sex differences in family planning knowledge, attitudes, and use in Uganda. *Contracept Reprod Med*. 2021;6(1):23. doi:10.1186/s40834-021-00166-5
6. Ndayizigiye M, Fawzi MCS, Lively CT and Ware NC. Understanding low uptake of contraceptives in resource-limited settings: a mixed-methods study in rural Burundi. *BMC Health Serv Res*. 2017;17(1):209. doi:10.1186/s12913-017-2144-0
7. Brooks MI, Johns NE, Quinn AK, Boyce SC, Fatouma IA, Oumarou AO, Sani A and Silverman JG. Can community health workers increase modern contraceptive use among young married women? A cross-sectional study in rural Niger. *Reprod Health*. 2019;16(1):38. doi:10.1186/s12978-019-0701-1
8. Okegbe T, Affo J, Djihoun F, Zannou A, Hounyo O, Ahounou G, Bangbola KA and Harris N.

- Introduction of Community-Based Provision of Subcutaneous Depot Medroxyprogesterone Acetate (DMPA-SC) in Benin: Programmatic Results. *Glob Health Sci Pract.* 2019;7(2):228-239. doi:10.9745/GHSP-D-19-00002
9. Ewerling F, Victora CG, Raj A, Coll CVN, Hellwig F and Barros AJD. Demand for family planning satisfied with modern methods among sexually active women in low- and middle-income countries: who is lagging behind? *Reprod Health.* 2018;15(1):42. doi:10.1186/s12978-018-0483-x
 10. Hayward A and Brown K. A Collaborative Family Planning Program in Rural Uganda Utilizing Community Health Workers. *RI Med J* 2013. 2019;102(7):25-27.
 11. StataCorp. 2021. *Stata Statistical Software: Release 17.* College Station, TX: StataCorp LLC.
 12. Nanvubya A, Wanyenze RK, Nakaweesa T, Mpendo J, Kawoozo B, Matovu F, Nabukalu S, Omoding G, Kaweesi J, Ndugga J, Kamacooko O, Chinyenze K, Price M and Jean Geertruyden PV. Correlates of knowledge of family planning among people living in fishing communities of Lake Victoria, Uganda. *BMC Public Health.* 2020;20(1):1642. doi:10.1186/s12889-020-09762-7
 13. Beckham SW, Stockton M, Galai N, Davis W, Mwambo J, Likindikoki S and Kerrigan D. Family planning use and correlates among female sex workers in a community empowerment HIV prevention intervention in Iringa, Tanzania: a case for tailored programming. *BMC Public Health.* 2021;21(1):1377. doi:10.1186/s12889-021-11426-z
 14. Nigeria: community-based family planning. *Salubritas.* 1986;9(2):1-2,8.
 15. Masiano SP, Green TL, Dahman B and Kimmel AD. The effects of community-based distribution of family planning services on contraceptive use: The case of a national scale-up in Malawi. *Soc Sci Med* 1982. 2019; 238:112490. doi:10.1016/j.socscimed.2019.112490
 16. Nanvubya A, Wanyenze RK, Kamacooko O, Nakaweesa T, Mpendo J, Kawoozo B, Matovu F, Nabukalu S, Omoding G, Kaweesi J, Ndugga J, Bagaya B, Chinyenze K, Price M and Van Geertruyden JP. Barriers and Facilitators of Family Planning Use in Fishing Communities of Lake Victoria in Uganda. *J Prim Care Community Health.* 2020;11:2150132720943775. doi:10.1177/2150132720943775.

Appendix A: Theory of change for Uganda village project's healthy village initiative

