

Improving sexual and reproductive health knowledge and practice in Mozambican families with media campaign and volunteer family health champions

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ABSTRACT

Objective To increase knowledge, attitudes and practice of sexual and reproductive health and family planning and to reduce maternal and neonatal mortality rates in Mozambique.

Design An implementation research project's intermediate evaluation, applying two cross-sectional surveys. The surveys were planned for 316 subjects before and after interventions.

Setting Research performed in Natikiri district of Nampula province in northern Mozambique, targeting a suburban and rural populations in their homes.

Participants 452 people were surveyed (91 before, 361 after), all belonging to the Macua ethnic group.

Interventions A media campaign (2 weekly radio spots, bimonthly theatre performances) was performed for 8 months (2017 to 2018) and family health champions' teachings (monthly home visits) performed for 3 months, on sexual and reproductive health and family planning. Outcome measures planned and measured were adolescent's and adult's knowledge, attitudes and practice about those. Data were analysed by gender, age group and frequencies, using a CI of 95% ($p < 0.05$ statistically significant).

Results Radio spots, community theatre and volunteer champions increased population's knowledge about sexual and reproductive health and led to a more positive attitude toward family planning. Concerning attitude, results show differences between adults' proportions before and after: (1) did you hear about sexual and reproductive health ($p = 0.0425$); (2) knows project key messages ($p < 0.001$); (3) knows prenatal visits importance ($p = 0.0301$); (4) access to contraceptives was easy ($p < 0.001$). Adolescents showed statistically significant differences before and after: (1) knows project key messages ($p < 0.001$); (2) access to contraceptives was easy ($p = 0.0361$). Family planning practice did not increase in both groups.

Conclusion A health education intervention, using a media campaign and local volunteers, is useful to promote mother and child health. There is an unmet need for family planning and the use of modern contraception is below desired practice, needing further research about cultural barriers. Communication for behaviour change activities will pursue and impact will be assessed to document family planning practice improvement.

BACKGROUND

Maternal and infant mortality are both public health and societal problems in Mozambique. Low levels of sexual and reproductive health knowledge and low use of family planning are contributing to this situation. Our research in the northern Nampula Province aims to assess the effect of a media campaign and newly formed family health champions on sexual and reproductive health knowledge and use of family planning.

Ongoing implementation research evaluation shows that community volunteers and media campaign can improve mother and child health by expanding sexual and reproductive health knowledge and improving motivation for and access to family planning.

This study's external validity is supported by a representative sample of participants and by the local setting's features, common in Mozambique. We found family planning unmet needs and access barriers that will be further studied in our implementation research.

INTRODUCTION

Maternal and neonatal mortality rates in Mozambique are high: 451.6 maternal deaths per 100.000 live births (2017).¹ In primary healthcare centres, death occurs more frequently within the first 2 hours of the pregnant woman reaching the hospital, highlighting the precarious conditions and women's late arrival to the health centre (HC).²

In Mozambique, the major determinants leading to maternal and neonatal deaths are the low use of family planning (FP), adolescent pregnancies, shortage of qualified personnel in the HC, poor quality and

quantity of materials and equipment, low-quality care, deficiency in referral system, long travel distances to the HC, lack of transportation, poor communication between health professionals (HP) and the community, and gender issues such as the low decision-making power of women and low literacy levels.^{3,4}

To have healthy women and children, access to and use of FP are essential. Early and unintended pregnancy among adolescent girls is influenced by contextual factors at the individual, interpersonal, community and societal levels. It is also associated with adverse health, along with educational, social and economic outcomes that impose a substantial burden on the economies and health systems of developing countries.⁵ Achieving universal access to FP would have one of the highest cost-benefit ratios among the many policy options for development.⁶ There are evidence-based successful programme approaches such as enhancing the acceptability of avoiding, delaying, spacing and limiting childbearing and improving the understanding of contraceptive methods and sexual and reproductive health (SRH).⁷ That is why FP is a priority in the 5-year government plan and in the Ministry of Health's strategic health sector plan for 2014–2019.⁸

To make informed decisions about sexuality and reproduction, individuals need access to good quality, evidence-based and comprehensive information on sexuality and SRH, including effective contraceptive methods. This requires counselling on SRH by trained personnel and the provision of comprehensive sexuality education, provided both within and outside schools. This education must be scientifically accurate, gender sensitive, free of prejudice and discrimination, and adapted to young people's level of maturity to enable them to deal with their sexuality in a positive and a responsible way.⁹

Therefore, the Health Sciences Faculty (HSF) of Lúrio University (UniLúrio) and the University of Saskatchewan conducted this research. It is part of an intermediate planned evaluation of an implementation research project on maternal and new-born health in Nampula, Mozambique, named Alert Community to Prepared Hospital Care Continuum (ACPH). Project activities target community participation and education, HP training and antenatal and maternity technological improvements. The baseline study showed a low knowledge level of SRH in the Natikiri community and low use and practice of FP.¹⁰ Therefore, one strategy of this project is to share key maternal and child health (MCH) messages (FP is beneficial and important and attend at least four prenatal consultations; institutional delivery is beneficial and important and attend two postnatal visits), using a media campaign and trained community volunteers.

The aim of this study is to evaluate the impact of MCH messages on the adolescent and adult community members in Natikiri. We planned to do this by surveying the local population, regarding the perceptions, attitudes and practice of adolescents and adults around FP as well

as their knowledge about project key messages as listed above.

METHODS

Setting and intervention

This research is an intermediary evaluation of ACPH project's strategy to support knowledge and practice of SRH, with a focus on rights, FP, contraception, targeting the objective 'advocacy to contraceptive access'. We conducted it in Natikiri district residents, including adolescent girls and boys, young and adult men and women, at their homes. This health communication campaign, facing a specific population's cultural characteristics, used a combination of channels estimated appropriate by families.¹¹ We applied three interventions, including radio, theatre and family visits.

1. Media campaign: MCH key messages were prepared and adapted, translated in Macua, and the radio broadcasts (22 spots each 3 min) started in December 2017; 10 spots were specifically for weekly radio listening/discussion groups, which had been set up in the community; 20 portable radios and USB sticks with the spots were distributed to six local health committees (LHC). This intervention lasted 8 months.
2. Three plays were produced about MCH key messages, publicised and presented (each lasting about 15 min), by a local theatre group (21 players, 35 presentations) in Macua language, for 8 months in village centres.
3. Community health volunteers: SRH and FP training was done for 5 days with six LHCs, each with two directors, four 'Family Health Champions' (FHC), three transport agents and one transport manager, a total of 60 community volunteers. In March 2018, they started their activities visiting Natikiri families to spread project key messages for 3 months.

The media campaign with SRH, FP, MCH key messages reached an estimated population (by radio) of over 200 000 people in Nampula city; the theatre spots reached 1750 people and the FHC as community health workers (CHWs) performed 268 visits to families delivering ACPH key messages to around 1340 people in Natikiri.

Design

We planned a double cross-section study to estimate intervention's efficacy on population's knowledge, attitude and practice changes of SRH and FP, before the interventions and 8 months later. The conceptual framework we used was a social ecological model to achieve behaviour change, based on theories as the Belief Model and Social Cognitive,¹² with a critical-cultural perspective,¹³ using a community empowerment approach, based on Freirean dialogic principles.¹⁴ No changes were made in the study procedures to the initial protocol.

The evaluation tool was a structured questionnaire (with multiple possible answers listed for the researcher to tick off; see online supplementary annex 1), pretested and approved, addressing questions about SRH and FP

knowledge, attitude and practice, and knowledge of the ACPH project messages. The surveys were conducted in November 2017 and June 2018 by a team of research assistants (students of the UniLúrio HSF dentistry, medical, nursing, nutrition, optometry and pharmacy courses) who speak the local language (Macua), after theoretical and practical training on quantitative data collection, including pretesting the questionnaire.

Participants and data collection

We performed two cross-sectional surveys with different participants randomly selected. A representative sample was calculated considering the size of the target population, the expected frequency, with a margin of error of 5% and 95% CIs. The estimated sample size for the survey was 144 people of each gender, with 10% data collecting errors risk, for a total of 158 surveys (79 adolescents and the same number of young people and adults). The same sample number was used before and after the intervention. Inclusion criteria were Natikiri residents (>10 years of age) willing to participate, able and willing to give informed consent term (those <18 years had also their parent's or guardian's consent). Residents that refused to participate or parents that refused their adolescents to participate were not included. There were no excluded participants (intoxicated or stopped answering).

Participants were selected randomly, one male and one female in one of every two houses, beginning in the centre of 18 communities. They were surveyed in their most comfortable language (Portuguese or Macua) to improve the quality and accuracy of data collected and separately by gender to maximise the opportunity for freedom to speak and to eliminate problems of gender bias, repression and domination. Participants answered the questions verbally (research assistant wrote the answers in the questionnaire). The survey was done in or close to their home and took approximately 15 min.

Statistics

Data collection survey sheets were checked for quality by a second researcher and then typed and inputted into Microsoft Office 10 Excel data base by student research assistants, supervised by statistics professor. Data were analysed by SPSS21 (Stata Corp), and we tested differences

between proportions by χ^2 test using a CI of 95% and a significance level of 0.05.

Ethics

We followed Helsinki Declaration (2013) recommendations. Confidentiality was insured excluding all personal identifications from survey answers and keeping the participant list in a password-protected file. There were no potential risks to individuals or communities and benefits of this research were explained and understood by all participants that signed an informed consent form.

RESULTS

We surveyed 452 people aged from 10 to 72 years; 62.4% are adults and 83% are women. The proportion of adults in both genders has not shown significant difference (table 1).

Population's SRH concepts knowledge increased 10%, knowledge about ACPH FHC work improved (10% with adolescents, 6% with adults) and ACPH key messages knowledge improved (40%).

Adolescents' and adults' contraceptive access (attitude about FP) increased 20% after the interventions. Among those not practising FP, 72% said they were motivated to do it (81% of young people).

Behaviour change on FP practice is not achieved yet.

Injectable progesterone is the most common method used by those practising FP (57%) followed by condom use (17%).

In adolescent population not practising FP, 69% say they were motivated to do it (78% boys, 71% from 15 to 19 years). Those who practised it use mainly condoms (36%, 64% boys, 18% girls) and injectable progesterone (29%, 35% girls, 33% from 10 to 14 years).

After the interventions, adult population knowledge about FP was not higher (see table 2); most acquire their information at HC. SRH concepts are now more widespread, and listening to radio programme increased FP information from 2% to 12%. The predominant meaning of FP is to 'avoid pregnancy' (55%, for young people 62%, see table 3), but included in the second survey were 13% saying it was 'to have less kids' and 'to have children when I want'. Knowledge about ACPH FHC's work and

Table 1 Characteristics of the study population

	November 2017		P value	June 2018		P value
	Adolescents (n=30)	Adults (n=61)		Adolescents (n=140)	Adults (n=221)	
Sex, %						
Male	17	25	0.391	31	34	0.525
Female	83	75		69	66	
Age, mean (SD), years	18 (3.2)	36 (14.9)		16 (2.2)	32 (11.9)	
Total	91			361		

n, number of participants.

Table 2 Adult and adolescent SRH and FP knowledge, attitude and practice before and after the interventions

	Adolescents			Adults		
	Oct 2017 (n=30)	Jun 2018 (n=140)	P value	Oct 2017 (n=61)	Jun 2018 (n=221)	P value
Knowledge (%)						
Sexual and reproductive health	41	56	0.135	63	76	0.0425
Family health champions	9	21	0.1275	18	26	0.197
FHC messages	9	20	0.1275	14	21	0.2217
ACPH key messages	11	47	<0.001	50	90	≤0.001
Attitude (%)						
Contraceptive acquirement	56	75	0.0361	63	83	<0.001
Practice (%)						
Practice FP	48	18	0.002	47	47	1.000

n, number of participants.

ACPH, Alert Community to Prepared Hospital Care Continuum; FHC, Family Health Champions; FP, family planning; SRH, sexual and reproductive health.

key messages also improved: reproductive health, sexual health, FP, prenatal consultation, institutional delivery, new-born visits. There was a statistically significant difference about prenatal visits importance ($p=0.0301$).

In the adolescent population (24% from 10 to 14 years, 76% from 15 to 19 years age), knowledge about FP did not show any increase, with most of this knowledge (55%) being acquired in schools. FP means mainly to avoid pregnancy (67%, girls 70%). SRH concepts are more widespread in boys (67%) and in the 15 to 19 years age group (69%). Listening to radio programme was endorsed more frequently as how adolescents gained FP information. It rose from 3% to 8% (11% for boys).

DISCUSSION

The main results we found were as follows:

1. Increased knowledge about SRH and ACPH MCH key messages.
2. Adolescent and adult population's attitude improvement towards FP, but barriers were identified, including lack of privacy and low-quality service.
3. Large unmet contraceptive needs.
4. A minority practice FP, and there was no increase in FP utilisation.

We had a population's knowledge and attitude improvement after the intervention and three out of four women and men of reproductive age are ready to start FP, a result like a research in Malawi (2011).¹⁵

The media campaign reached a population usually without availability to social media. The theatre intervention has a strong local impact to inform and educate. ACPH project key messages are being received by Naticiri population. Ministry of Health SRH and FP education on TV spots were on the air before and after the intervention, and their contribution for FP knowledge varied from 2% to 12% as a potential confounder.

CHWs like the FHC have the potential to improve knowledge, health behaviour and health outcomes related to prevention of unwanted pregnancy, FP and pregnancy management in low and middle-income countries.^{16 17} In carrying out their duties, CHWs may bring patients to the public health system, bring this system to the patients and have a formal role in structures that bridge the state society divide such as LHC.¹⁸ Our FHCs belong to the LHCs and in Mozambique these LHCs have their roles clearly defined and set in law with guidelines, although some are not adequately representing or engaging with their communities.

But we are still far from ensuring universal access to SRH and reproductive rights.¹⁹ The lower percentage of adolescents saying they practice FP in the second survey is due to a larger number of participants and residents in more rural areas distant from HC and with lower school level and might correspond to a more reliable evaluation. Weak SRH knowledge and low accessibility to health services are significantly related to adolescent pregnancy.²⁰ Adolescents face several barriers in accessing SRH services, significantly impacting their lives, health and human rights.²¹ According to our survey, one third of adolescent girls face barriers to SRH. Another study showed that the biggest gap between what students wanted to learn and what they were taught was in contraception and related skills: in Kenya, 13% of surveyed students learnt how to use contraception, while 66% wanted to learn more.²² Injectable progesterone is mostly used in Naticiri area. Intrauterine devices (IUDs) are unknown, confirming the evidence from sub-Saharan Africa citing a scarcity of trained and competent professionals in method provision, particularly in rural areas. The quality of care and mistrust of facilities limit uptake of IUD.²³

Barriers referred to FP access (family pressure, religious and cultural determinants) need to be further researched. This community-based participatory implementation

Table 3 Natikiri population SRH and FP KAP before and after the interventions

	Adolescents		Adults	
	Oct 2017 (n=30)	Jun 2018 (n=140)	Oct 2017 (n=61)	Jun 2018 (n=221)
Knowledge (%)				
Do you know what FP is?	90	84	98	91
You learnt about FP in school?	27	47	7	11
You learnt about FP in health centre?	43	17	57	54
You learnt about FP with your family?	3	5	0	0
You learnt about FP with your friends?	7	10	0	0
You learnt about FP in the radio?	3	8	2	12
You learnt about FP in the TV?	3	13	0	0
FP means to avoid pregnancy	67	67	63	55
FP means space pregnancy 3 years	17	10	28	14
FP means I have children when I want to	8	7	0	13
FP means I will have less children	4	9	0	0
Do you know ACPH key message on sexual health?	0	33	20	31
Do you know ACPH key message on reproductive health?	3	13	32	41
Do you know ACPH key message on FP?	9	35	24	15
Do you know ACPH key message on antenatal visit?	0	6	20	8
Do you know ACPH key message on maternity delivery?	0	9	4	4
Do you know ACPH key message on new-born visits?	0	3	0	1
Do you know the importance of antenatal visits?	73	77	98	89
Do you know the importance of four antenatal visits?	0	15	7	14
Do you know the importance of delivering in the maternity?	90	84	97	97
Do you know the importance of new-born visit?	90	86	97	99
Do you know the importance of two new-born visits?	3	12	13	11
Attitude (%)				
FP faces social barriers	57	16	50	30
FP faces cultural barriers	0	30	15	22

Continued

Table 3 Continued

	Adolescents		Adults	
	Oct 2017 (n=30)	Jun 2018 (n=140)	Oct 2017 (n=61)	Jun 2018 (n=221)
FP faces family barriers	0	18	13	20
FP faces transportation barriers	0	9	18	16
FP faces privacy barriers	21	14	0	6
FP faces low quality service barriers	0	13	0	7
Practice (%)				
I practice FP with injection	53	29	55	57
I practice FP with pills	33	25	29	14
I practice FP with condom	13	36	0	17
I practice FP with implant	0	4	0	0
I practice FP with natural cycle and abstention	0	7	0	0

n, number of participants.

ACPH, Alert Community to Prepared Hospital Care Continuum; FP, family planning; KAP, knowledge, attitude and practice; SRH, sexual and reproductive health.

research aimed at changing knowledge, attitude and behaviour, policies and policy environments (with the goal of eliminating health disparities) and constitutes a promising approach, as referred by other authors, to better MCH.^{24 25}

Our limitations were surveys' sample differences before (91) and after (361), due to fact that during the rainy season most population move away from their main house and go to their small subsistence farms (*Mach-ambas*) in the countryside. This limited data analysis and interpretation. Considering the programme intervention area, families surveyed are mostly resident in peri-urban areas, excluding a smaller population living in deep rural Natikiri.

The intervention was designed and implemented with community participation, but the community did not properly evaluate this campaign, and this should be done in next phase.⁷

CONCLUSION

The study result's generalisability (external validity) is supported by a representative sample of participants in terms of demographic and social characteristics and by the features of a local setting that are most common in Mozambique.

This implementation research intermediary evaluation shows that the media campaign and FHC interventions' short-term results are important and useful to improve MCH by:

1. Expanding SRH knowledge, especially among adolescents.
2. Improving motivation and access to FP, although its use did not increase.

3. Using a media campaign to improve population's knowledge about SRH and MCH.
4. Using community volunteers to impact population's knowledge about SRH and MCH.

The intervention reduced the large FP uncovered needs but there are still access barriers (religious taboos, family exigences, low-quality service, lack of privacy and confidentiality), needing further studies to overcome them. Those are targeted in ACPH objectives and might be solved as we continue implementation activities.

Collaborators André Kisito; Carlos Puaheque; Celso Belo; David Zakus; Edward Rooke; Jaibo Mucofo; Manuel Mahoche.

Contributors PHP contributed to study protocol conception and design, data collection, analysis and interpretation, reporting, article draft and final approval of the version to be published. MM helped in data treatment, analysis and interpretation, reporting and final approval of the version to be published. RS contributed to study protocol conception, data interpretation, translation to English, article draft and final approval of the version to be published.

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Patient consent for publication Not required.

Ethics approval This study was approved by the Lúrio University's Institutional Committee on Health Bioethics (02/CBISUL/16) and the Behavioural Ethics Board at the University of Saskatchewan (BEH#15-112), and authorised by HSF Board and Scientific Committee, Nampula Provincial Health Directorate and the Secretariat of Natikiri district.

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Data availability statement Data are available upon reasonable request.

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