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Users' opinion about antenatal visits quality: implementation research in Nampula, Mozambique

Abstract

Background: Access to and quality of maternal and child health services are essential to reduce morbidity and mortality in these groups, which are extremely high in Africa, including Mozambique. The reasons for this are complex but one important factor is the availability of efficient, timely, patient centred antenatal care for all pregnant women. Antenatal visits are important, and they should be performed as early as possible during pregnancy. To contribute to reduce maternal and new-born mortality rates in Nampula, the Faculty of Health Sciences at Lúrio University and the University of Saskatchewan, carried out an implementation research, including training activities for local health units' professionals in maternal and child health care. This research will assess the impact of health professionals training in maternal and child health, on the quality of services of antenatal visits at the Marrere Health Centre in Nampula, Mozambique.

Methods: Descriptive, quantitative pre-post study, applying three cross-sectional surveys on user's opinion about antenatal visit quality. The baseline surveys included a sample of women in antenatal consultation (with a 10% margin error and 90% confidence interval) and for post surveys, after completion of four and eight professional training modules, the samples were calculated with a 95% confidence interval and a 5% margin of error. The three groups of different subjects underwent a private survey, using a five-point Likert scale, after signing an informed consent form. The surveys were entered into a database, and analysed to assess frequency, percentage, average and standard deviation. This research was approved by the Lúrio University and the University of Saskatchewan' Bioethics Committees.

Results: 309 pregnant women were surveyed during antenatal visits, and the principles of good care assessment shows a positive evolution about communication and information; some shortcomings persist. Regarding labour conditions and new-born care, we see a positive evolution, such as with receiving information about the right they have to a companion during childbirth (72.9%, namely a traditional birth attendant) and the importance to start breastfeeding in the first hour following delivery (88.7%).

Pregnant women globally rated their experience in antenatal consultation in 2019 as excellent (42.5%) and good (48%). The evolution of this service, however, was unfavourable in terms of privacy.

Conclusion: Antenatal visits quality at Marrere Health Centre, in the users' opinion, improved and health professionals are practising according to the national Ministry of Health protocol, yet with some deficiencies in information and communication, to overcome by continuous professional development. The women' low level of schooling, needs an information campaign on sexual and reproductive health and family planning, widely disseminated in rural communities and among most disadvantaged populations.

Keywords: ante-natal visit, health services, implementation research, maternal health, Mozambique, quality assessment

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Background

Access to and sufficient quality of maternal and child health (MCH) services, are essential to achieve sustainable development goals number 3 and 5,[1] especially in developing countries, including reducing rates of morbidity and mortality in these groups, which in Mozambique are among the highest in Africa and the world. In Mozambique, though the maternal mortality rate has been decreasing in the last two decades,[2] it is still high (451.6 maternal deaths per 100,000 live births, 2017).[2,3] The main causes are the lack of family planning (FP), teenage pregnancy, lack of qualified health professionals (HPs), equipment and consumables, poor quality of care, deficient referral system, long distances and lack of transport to access the health unit (HU), poor communication between HPs and the community, gender issues (including women's weak decision-making power), and low education attainment.[4,5] Although the Ministry of Health (MISAU) defined policies to guarantee sexual and reproductive health (SRH) rights in 2011,[6] in the last decade, the low quality of MCH services in Mozambique, has hardly improved.[7] An assessment of quality and access to health care, in 195 countries in 2016, placed Mozambique in position 189 (the 6th worst).[8]

These barriers to antenatal care (which includes nutrition education, preventive treatment of malaria, human immunodeficiency virus, HIV and syphilis screening, and others),[9] are common to most countries in sub-Saharan Africa.[10] The importance of frequency and quality of antenatal visits (ANVs) is reflected not only in the mother's, child's and family's health but also in the development of communities and countries. In Mozambique in 2017 , 54% of women of childbearing age suffered from anaemia, and in early pregnancy, when not diagnosed

and treated, it is associated with child intellectual disability, autism, attention deficit and hyperactivity.[11] These outcomes justify the need for quality ANV. It is particularly important for the visits to take place early in pregnancy,[12] though this happens in less than a quarter of pregnant women in the region.[13]

These facts led the Faculty of Health Sciences (FHS) of the Lúrio University (UniLúrio) and the University of Saskatchewan in Canada to develop this implementation research on MCH , in Natikiri administrative area, in Nampula province, Mozambique, called Alert Community to a Prepared Hospital (ACPH) care continuum. A baseline study showed a low level of knowledge about SRH in the Natikiri population and poor FP practice.[14] Project activities stimulated community participation and SRH and FP education, and also improved training in antenatal care, new born resuscitation and humanization of care in Marrere Health Centre (MHC) and Marrere General Hospital (MGH). Two echographs and some other equipment and consumables were also provided to the antenatal services.

This paper pertains to the results of a planned mid-project evaluation, intended to estimate the impact of HPs training in MHC on the quality of the ANVs. Given the importance of feedback from users to evaluate health services, with regards to the quality of care issues, communication, information, and advice, we collected users' opinions about ANVs.

Methods

Study design: descriptive quantitative pre-post study, applying three cross-sectional surveys on user's opinion about ANVs quality at MHC, Natikiri, Nampula, Mozambique; one of the surveys being conducted pre intervention (baseline) and the other two post interventions. The baseline study was done during the 1st semester of the ACPH project (2017), before the training took place. The trainings then took place then between 2017 and 2019. Changes in ANV quality were evaluated during the 3rd (2018) and 6th (2019) semesters of the project, after implementing four and eight training modules (three on obstetric emergencies, two on new-born resuscitation, one on SRH rights and two on family-friendly consultation and humanized care, five days each for 20 hours in total), given to 60 HP over the eight modules.

Sample: in the baseline assessment (2017) we used preliminary data from the National Institute of Statistics census in 2017, to calculate the sample: Mozambican population was composed of 26,423,623 people, with 51.7% of women, with 24.9% of these being of childbearing age. To calculate a representative sample of pregnant women, who present at MHC for ANVs, the Epi Info ™ 7.2 program was used considering the size of the target population and the expected frequency , with a margin of error of 10% and a confidence interval of 90 %. Sample sizes for 2018 and 2019 surveys were calculated considering the monthly average number of users, a 95% confidence interval, and a margin of error of 5%. The three groups are made up of different subjects.

Data collection: The research tool was a structured interview designed by the research team, following WHO recommendations;[15] the questionnaire had 28 closed questions with multiple choice options, accessing principles of good care, communication with the woman, privacy and confidentiality, care throughout labour and birth, and three open questions: best service, least pleasant, needs to do. Users' groups were submitted to this survey, previously tested to evaluate validity and feasibility, with 10 pregnant women at the close by *25 de Setembro* health centre, and one adjustment was made adding "faces" expressing opinion in. The questions were made in Portuguese or Emakhuwa (local language) according to the participant's preference, applied face to face by UniLúrio FHS' students unknown from participants, after being adequately trained and signing ethical and scientific commitment forms. Pregnant women were questioned in private at the MHC, from 20 to 24 May 2017, from 4 to 31 July 2018 and from 28 November to 6 December 2019; all were informed they were free to participate voluntarily or abandon the survey if they wanted, without any consequences in access or quality of care, and signed an informed consent form, including an informed assent term for adolescents under 18 years of age.

There were no interviews refusals or abandons. The surveys were answered using a 5-point Likert scale (i.e., totally agree, agree, indifferent, disagree, strongly disagree; or, always, often, sometimes, very infrequently, never), were evaluated on the quality of completion by the principal investigator and introduced into REDCap (Research Electronic Data Capture at https://rev.unilurio.ac.mz/umestumafam/redcap), by the same students, accompanied by a FHS lecturer to consult as needed. The data were then analysed by a statistics professor to assess frequency, percentage, average and standard deviation, using X^2 tendencies test and Kruskall Wallis test, to access statistically significant associations. This study was approved by the Institutional Committee on Bioethics for Health at UniLúrio (02/CBISUL/16) and the Bioethics Committee at the University of Saskatchewan (BEH#15-112) and followed all Helsinki Declaration (2013) guidelines.

Results

We surveyed 309 pregnant women at ANVs (100 at baseline, 78 after the first four HPs trainings and 131 after the 8th training session). Samples participants' characteristics are detailed in Table 1. The proportions of residence locations changed, with a statistically significant increase in Natikiri (p<0.001); mean age did not change but school level decreased. Using Kruskall Wallis test, there is evidence of a statistically significant increase in previous pregnancies number (p=0.010). We have a small increase in maternity deliveries and miscarriage, and reduction of domiciliary deliveries and FP practice, all without statistical significance. Our evaluation of good care principles shows a statistically significant positive change in several areas: the patients felt more welcome to the consultation and motivated to return, they felt that HPs presented themselves and asked if they had any doubts (Table 2). Other answers are less favourable: HP does not ask their name. Regarding communication with the woman, HPs encouraged them to ask questions and state their expectations at the beginning of the consultation and then explained what they would do, before performing physical examination or other interventions. Less favourable is encouragement to husband participation during ANVs and caring for the new-born.

We have an increased number of patients satisfied with the quality of the ANVs services at MHC, in those three years, statistically significant ($p < 0.05$ in 6/7l questions with X^2 tendencies test). Change over the years of intervention was unfavourable in terms of privacy, namely about the privacy of consultation place and advice and the guarantee that no one is listening. Regarding delivery conditions and new-born care, we verify a generally positive change: patients were more informed about their right to receive or deny treatment, about their right to be informed by HP if they have any questions; about

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their right to have a companion during childbirth, namely a traditional midwife; and the HP encouraging the use of relaxation, breathing and massage techniques; they were informed that they can choose the position for labour and delivery; and that they should start breastfeeding within one hour after delivery.

The last question summarizes the findings of participants perception, asking the pregnant women how they evaluate their overall experience at the ANVs. Here we see a statistically significant overall positive change, over the three years, with an increase in the number of women with a pleasant experience at ANV (a large part of women considered the consultation excellent, rising from 5 to 42.5%). There is also a group, who reported little or no satisfaction (9.5%). Table 3 details these responses. In answers to open questions, in 2019 survey, about what they did not like about the service, 14 women (10.9%) refer to HP delay; about what they would change to make the service better, 13 women (11.4%) reported improving HPs punctuality and 8 (7.0%) improving the reception of patients by HPs.

Table 1 Participant characteristics

			2017 (n=100)	2018 (n=78)	2019 (n=131)		
No.	**Question**	**Answer**	**Baseline**	**Post 4 trainings**	**Post 8 trainings**	**Evolution %**	**p**
1	Residence (%)	Natikiri	56	83	98.5	76	<0.001
		Other	44	13	1.5	-97	
2	Age (standard deviation) Years	Mean	24.4 (-7.5)	24.7 (-6.9)	24 (-5.7)	(-)	0.882
		< 18years (%)	10.4	(-)	3.1	-70	
3	Education (%)	Illiterate	28.9	(-)	35.9	24	
		Primary	48.7	(-)	46.6	-4	
		Secondary	(-)	(-)	(-)	(-)	
4	Number of previous pregnancies	Average (n) (standard deviation)	2.6 -2.2	3.6 -2.3	3.1 -1.9	19	0.01
		<= 3 (%)	57	50	63.4	11	
5	Number of hospital deliveries	Average (n) (standard deviation)	2 -2.1	2.1 -2.1	2.4 -1.8	20	0.436
6	Home births	(%)	25	15.4	17.1	-32	
		Average (n) (standard deviation)	0.5 -1	0.3 -0.7	0.2 -0.6	-60	0.127
7	Miscarriages	No (%)	83.1	87.2	83.2	(-)	
		Yes (%)	16.9	12.8	16.8	-1	
		Average (n) (standard deviation)	0.09 -0.3	0.2 -0.8	0.2 -0.8	122	0.141
8	Practiced or intends to practice PF	(%)	55	(-)	43.5	-21	

Table 2 Users 'opinions on the quality of antenatal services in Marrere Health Centre, Natikiri, Mozambique; an assessment of good care principles

Question	**2017 (n=100) Base line**	**2018 (n=78) Post 4 trainings**	**2019 (n=131) Post 8 trainings**	**p**
I was greeted and offered a seat (%)				
I totally agree	42	98.7	84	<0.001
I agree	54	0	3.1	
Indifferent	3	0	3.8	
I disagree	0	0	3.8	
I totally disagree	1.1	1.3	5.3	
HP summarized the most important information at the end of the consultation. (%)				
I totally agree	24	29.5	53.1	0.021

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Table Continued

Question	2017 (n=100) Base line	2018 (n=78) Post 4 trainings	2019 (n=131) Post 8 trainings	p
I agree	70	16.7	3.8	
Indifferent	6.2	17.9	4	
I disagree	8.5	3.8	2	
I totally disagree	28.5	32.1	0	
I feel motivated to return to the next appointment or sooner if I have any questions. (%)				
I totally agree	7	57.7	84.7	0.071
I agree	16	17.9	6.9	
Indifferent	23	20.5	2.3	
I disagree	30	1.3	3.1	
I totally disagree	24	2.6	3.1	
I felt welcome to the consultation. (%)				
I totally agree	41	57.7	80.9	0.032
I agree	54	15.4	6.1	
Indifferent	3	25.6	4.6	
I disagree	2	0	3.8	
I totally disagree	0	1.3	4.6	
HP asked me if I had any questions. (%)				
I totally agree	14	43.6	60.3	<0.001
I agree	36	20.5	8.4	
Indifferent	17	17.9	4.6	
I disagree	32	2.6	3.8	
I totally disagree	1	15.4	22.9	
If I had some discomfort, the HP politely clarified the issue using clear and simple language. (%)				
I totally agree	13	85.9	68.5	0.005
I agree	46	2.6	7.7	
Indifferent	24	3.8	4.6	
I disagree	15	1.3	6.9	
I totally disagree	2	6.4	12.3	
Before starting the consultation, HP asked me what my expectations were? (%)				
I totally agree	20	15.4	32.1	0.002
I agree	71	11.5	6.1	
Indifferent	7	16.7	1.5	
I disagree	2	3.8	9.2	
I totally disagree	0	52.6	51.1	

Citation: Pires PHDMM, Belo C, Mupueleque MA, et al. Users' opinion about antenatal visits quality: implementation research in Nampula, Mozambique. *Int J Fam Commun Med.* 2021;5(6):247–253. DOI: 10.15406/ijfcm.2021.05.00253

Table 3 Users' opinions about their antenatal visits experience

		2017 (n = 100)	2018 (n = 78)	2019 (n = 131)		
Question	**Response (%)**	**Baseline**	**Post 4 trainings**	**Post 8 trainings**	**Evolution (%)**	**p**
How do you evaluate your experience at ANV?	Great	5	39.7	42.5	750	<0.001
	Good	69	56.4	48	-30	
	Not very satisfied	26	3.8	8.7	-66	
	Not satisfied	0	0	0.8	(-)	

Table 4 Evolution of antenatal visits indicators in Marrere Health Centre

Area	Indicator	2016	2017	2018	2019	Progress % 2016 - 2019
ANVs	1st consultation	1882	2004	1833	2393	27
	4 visits	405	644	916	1155	185
	% with 4 ANVs	26		50	48	85

Table 5 Statistically significative improvement of antenatal visits indicators in Marrere Health Centre

Indicator	Number ANVs (standard deviation)	95% IC	p
1ª ANV (2016 – 2019)	2028 (253.7)	1624.3–2431.8	0.001
4 ANVs (2016 – 2019)	780 (325.7)	261.7–1298.3	0.017

Discussion

Most of the study group lives in the three communal units of Natikiri neighbourhoods (Marrere, Murrapaniua, Natikiri), with others coming from neighbouring or more distant communal units, mostly with a more urban character, but with a decreasing trend over time. This means that a more rural group, with less accessibility to MHC (there is deficient public transport in the area), is now using these health services, probably due to the implemented interventions in the community: a media campaign (e.g., radio broadcasts and theatre plays), home visits by Health Committees' Family Health Champions, who disseminated the project's key SRH messages, and monthly training and monitoring of traditional birth attendants. The increase in the number of illiterates and the decrease in those with complete primary school, suggests the participation of a more rural population, with traditional cultural and social determinants that hinder the use of ANVs. Improving information and education of these women, needs a structured intervention of properly prepared local traditional leaders and other opinion makers.[16]

Mean number of pregnancies per women increased with statistical significance, though remaining less than the national average (5.2), with more than half having three or less pregnancies per women; this may be explained by the low average age of the samples (24 years). Early pregnancies (in girls under 18) decreased slightly, probably due to the widely disseminated ACPH project key messages, to avoid pregnancy before the age of 18 and the use of contraceptives, as beneficial for girls, boys, and families, reinforcing MISAU media campaign on SRH. Regarding the number of hospital deliveries, we noticed a slight increase, but always lower than the average number of previous pregnancies; home births show a reduction, probably a consequence of interventions carried out with traditional midwives, trained on obstetric risk signs and maternity referral for deliveries.

Miscarriages (spontaneous and provoked) show a slight increase without statistically significance; noting that this topic is culturally sensitive, and we assume that the reality goes beyond the cases mentioned. The previous practice or the desire to practice FP was manifested by almost half of the women (44%) in 2019, showing a slight reduction compared to 2017; probably related, once again, to the more rural and distant place of residence and the lower school level. However, these results (55% and 43.5% in 2017 and 2019, respectively) are significantly higher than the national average (12% in 2017).[17] Contrary to what we found in 2017,[18] by 2019 the majority of pregnant women in ANVs is satisfied with the service and HPs generally proceed according to the rules of good care and the MISAU MCH protocol. However, HPs still have some deficiencies in patients' reception, information, and communication, and in matters of confidentiality. FP counselling is limited, probably reflecting the influence of tradition on HPs to not engage with patients. Such limitations were found in other studies in Mozambique, and are common to other low-and-middle-income countries.[19]

This evaluation reveals a positive impact of HPs trainings on ANVs attendance quality, a result already well defined by MISAU since 2009.[20] And this finding was achieved, despite the bias introduced by the high turnover of MHC professionals, by a mandated reduction of about 50% in 2018 compared to 2017, causing an overload of work to those remaining, associated with a decrease in economic resources. However, MHC indicators assessment on ANVs shows a positive quantitative evolution over time, despite the lack of MCH professionals (Tables 4 and 5). We had a statistically significant difference in four evaluated years (2016-2019), on the number of women going to their first ANV (p=0.001) and pregnant women with four ANVs (p=0.017). We recommend a national HPs' training campaign , continuous,[21] combined with an information campaign that covers the most disadvantaged populations, using new

platforms for the dissemination of key messages, better information systems and establishing new partnerships,[22] to achieve behavioural change.[23,24]

Study limitations: as study limitations we point out first, as a potential study limitation, the lack of the questionnaire psychometric testing; also, the location of surveys in MHC that might have influenced some answers. Another issue is the application of the Likert scale to a population with perceived difficulty in abstract conceptualization, in which the terms totally and partially, may have been not well understood. The application of different questions in the second and third survey, is due to the implementation research method, which must adapt and correct interventions according to results being obtained in planned intermediate evaluations. Another limiting factor in comparing the three studies is the use of a 90% confidence interval and a 10% margin of error to calculate first group sample, different from the following ones (95% and 5% respectively).

Conclusion

Health systems today are faced with new challenges (antimicrobial resistance, climate emergency, Covid-19 pandemic) and will be forced to develop new intervention methods. With additional HPs training over two of the study years, MHC ANVs service quality improved, and most pregnant women were satisfied with the care provided. MCH HPs, although under a heavy workload, usually practice according to protocol, but there are still shortcomings in information and communication. Subsequent recommendations for MHC MCH professionals, were directly transmitted verbally in follow-up meetings, and written down and delivered to MHC Director and all HPs, most likely also having a positive impact on several quality of care indicators. MHC ANVs statistical indicators show improvement in the number of visits and the percentage of women who are now fulfilling the four antenatal visits, as directed by MISAU. The Mozambican national health system continually faces huge challenges, looking for new tools for action. Continuous HPs training, and widely disseminated SRH and FP information in rural communities and among disadvantaged populations, are keys to achieve behaviour change. Sustainability of theses interventions depends also on MISAU innovative and investment to:

I. Ensure the number required and continuity of MCH HPs at HUs.

II. Provide the necessary consumables for properly functioning services, including medicines, gloves, masks, and health information and education materials.

III. Promote recurrent trainings of MCH HPs, reinforcement and updating, in obstetric care, new-born care, humanized consultation, and patient centred and family friendly services.

IV. Organize and monitor community health information and education networks on SRH, FP and gender equity, associated with concurrent media information campaigns using local languages.

What is already known on this topic

I. Maternal and child mortality are high in Mozambique and an important cause is low quality of maternal and child health services.

II. Health professionals training improves care services quality.

What this study adds

I. Health professionals training in maternal and child health increases demand for ante-natal services.

II. Health professionals training improves their productivity.

Authors contributions

Paulo Henrique das Neves Martins Pires: Study protocol conception and design, data analysis and interpretation, article draft, final approval of the version to be published.

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Martins Abudo Mupueleque: Study protocol design, data treatment, analysis and interpretation, article draft, final approval of the version to be published.

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Conflicts of interest

The authors declare they have no conflicts of interest with study design or final report, no financial or personal relationships with other people or organizations that could inappropriately influence this research.

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