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MORE MAMaZ
Mobilising Access to Maternal Health Services in Zambia

End Line Survey Report

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Acronyms

ANC	Ante-natal Care
DHMT	District Health Management Teams
DHS	Demographic and Health Survey
DPO	District programme officers
ETS	Emergency Transport System
GBV	Gender-based violence
GRZ	Government Republic of Zambia
HIV/AIDS	Human Immuno-Deficiency Virus/ Acquired Immune Deficiency Syndrome
HMIS	Health Management Information System
HPI	Health Partners International
MCDMCH	Ministry of Community Development, Mother and Child Health
MDG	Millennium Development Goals
MNH	Maternal and new-born health
MORE MAMaZ	MORE Mobilising Access to Maternal Health Services in Zambia
NGOs	Non-Governmental Organisations
NHC	Neighbourhood Health Committees
PNC	Post-Natal Care
SMAGs	Safe Motherhood Action Groups
SRH	Sexual Reproductive Health
STI	Sexually Transmitted Infection

Summary Results

MORE MAMaZ

Indicator[1]	Intervention				Control		
	Baseline[2]	Endline	% change	p-value[3]	Baseline[4]	Endline	% change
	A	B	B-A	B vs D	C	D	D-C
% of women who have >3 ANC visits with the first visit in first trimester	37%	53%	16%	<0.01	41%	33%	-8%
% of women who know at least three maternal danger signs	51%	68%	17%	<0.01	43%	37%	-6%
% of men who know at least three maternal danger signs	19%	70%	51%	<0.01	34%	41%	7%
% of women who mention an emergency transport plan[5]	29%	43%	12%	<0.01	24%	26%	2%
% of women with >=3 things to prepare for a maternal emergency	11%	38%	27%	<0.01	11%	14%	3%
% of women who feel able to achieve a safe pregnancy[6]	Not set	85%	n.a.	<0.01		57%	
% delivering with skilled birth attendant	46%	78%	32%	<0.01	46%	68%	22%
% delivering at a health facility	64%	89%	25%	<0.01	62%	78%	16%
% of women receiving PNC within the first 6 days	43%	48%	5%	<0.01	49%	39%	-10%
% of women using a modern family planning method	24%	38%	14%	<0.01	31%	27%	-4%
% of women who think that wife beating is on the decline	Not set	88%	n.a.	<0.01		76%	
% of women reporting maternal complication	15%[7]	15%	-	0.081	15%	13%	-2%
% of women with complications not at facility when complication arose[8]	n.a.	54%		0.118		45%	
% of women with complication who attempted to access health care	83%	80%	-3%	0.947	82%	80%	-2%

[1] Calculated using responses from women, unless explicitly specified that data came from men.

[2] This value (A) was derived by adjusting the baseline value in MAMaZ (E) following the change in MAMaZ control districts (H-G) ((ie A=E+ (H-G)). This is the same as MAMaZ baseline plus the net change in control districts.

[3] Intervention vs control districts

[4] This value is the same as the MAMaZ endline control districts

[5] The question asked was: "What things do you think a pregnant woman to do to prepare for a possible maternal emergency? By maternal emergency, I mean problems during pregnancy, delivery or the first 40 days following delivery. If you do not know, that is OK."

[6] This indicator was not collected in MAMaZ

[7] Standard expected percentage of pregnancies that result in complications

[8] Calculated only for women who reported that they had a complication

Executive Summary

The MORE Mobilising Access to Maternal Health Services in Zambia (MORE MAMaZ) Programme is a partnership initiative between the Government of the Republic of Zambia (GRZ) and a consortium comprising Transaid, Health Partners International (HPI), Development Data, and Disacare. MORE MAMaZ is funded by Comic Relief. The programme expanded activities of the MAMaZ programme which was implemented by HPI between 2010 and 2013 and funded by DFID. MORE MAMaZ began in April 2014 and will run for 30 months to 30 September 2016.

This endline survey was conducted to establish the extent of success (or lack thereof) of the MORE MAMaZ initiatives in five intervention districts. The **main objective** of the endline survey was to collect adequate data to test whether MORE MAMaZ interventions were achieving desired programme objectives, and establish the magnitude of impact of programme interventions. The specific objectives were:

- To collect post intervention data to compare changes in attitudes, knowledge and practices arising as a result of the programme's demand-side interventions by examining, among others, changes in knowledge of maternal danger signs, birth preparedness and knowledge of community support systems.
- Establish actual use of skilled or facility based delivery services for routine and emergency care.
- Assess levels of social inclusion, empowerment among women and changes in experiences regarding gender-based violence
- Make recommendations for future programme design and for policy formulation and/or adaptation.

The endline survey was designed as a cross sectional quantitative household survey that targeted programme beneficiaries (women, men) in intervention sites and similar respondents in control sites. Statistical methods were used to calculate sample size, margin of error and confidence levels. The endline survey collected data from all five MORE MAMaZ districts: Mkushi, Serenje, Chitambo, Mongu and Chama; as well a further four control districts of Mbala, Mumbwa, Kapiri Mposhi and Samfya.

The sample size per domain was designed to give 90% CI with 5% margin of error. The sample size required for the survey was 2,406 respondents from 240 Neighbourhood Health Committees (NHCs). Field data collection was conducted between 14th March and 6th April 2016 by a team of 40 enumerators and 5 team leaders. Consultations were guided by a protocol that was developed and submitted to Eres Converge for ethical approval. Participation was informed, voluntary and information collected was treated as confidential.

An extensive **literature review** was conducted to shape the methodology used in this survey, as well as document what is already known from previous studies. The literature review established that maternal mortality can be reduced by the provision of skilled attendance at delivery and effective referral to

emergency obstetric care when required. ANC was identified as an important pathway to utilisation of these and other essential maternal health services. The 2014 DHS showed that of the women who failed to attend ANC, only 14% delivered in a health facility, compared to 70% of women who attended ANC between one and three times, and 75% of women who attended four or more times. The DHS also established that five in ten rural births are attended to by a skilled provider, compared to almost nine in ten urban births. Zambia's total fertility rate, at 5.3, is higher than many other countries in sub-Saharan Africa. Yet knowledge and use of modern methods of contraception is high among both men and women. The 2014 Zambian DHS also provided some important evidence on the extent and nature of gender violence in Zambia. The statistics are worrying, with 43% of women aged 15-49 years having experienced physical violence at some point in their lives (37% in the last 12 months).

This endline survey collected data from 2,350 women and 1,188 men. The total sample size was thus 3,538. Considering only female respondents, 98% of the total planned sample size was reached. The survey sample included 166 females and 74 males below the age of 18. The mean number of pregnancies recorded for females was 3.76 in intervention sites and 3.90 in control sites. There was no significant difference in the number of pregnancies across districts and when compared by intervention and control ($p=0.64$). 13% of female and 11% of male respondents in intervention sites mentioned that they were SMAGs. In contrast, 5% of females and 4% of males were some form of volunteer in control districts.

The average household size was 6.4 and dependency ratio[9] was 1.33. Chitambo (7.7) and Mkushi (7.2) had the highest household sizes. There was little variation between intervention and control sites with regard to sources of drinking water and the main type of toilet facility. The main source identified was borehole (34%) while river or stream (19%) and open public well (17%) where also frequently mentioned. Predominantly households used pit latrine with slab (60%) as the main type of toilet facility.

Data was collected on ownership of 35 assets, ranging from basic household items (furniture, radio cell phones etc) to productive (plough, boat, etc) and those depicting wealth status (car, tractor, bank accounts etc). This data was used to construct a wealth index. Most of the poorest quintile households were found in Samfya, Mbala and Kapiri Mposhi while the wealthiest were found in Mumbwa, Mkushi and Kapiri Mposhi. Significantly more females in intervention (51%) than control districts (47%, $p=0.038$) reported that they had everything they needed to look after themselves and their children.

For female respondents, a significantly greater percentage (59%) in intervention sites than in control sites (54%) correctly indicated that the first ANC visit should be in the first trimester ($p=0.012$). The baseline value for both was 54%. Females and males in intervention districts both mentioned that a woman should go for ANC 4.5 times; while their counterparts in control districts mention an average of 4.8 and 4.6 respectively. More females in intervention districts (85%) than in control (80%) indicated a number greater than 4 ($p<0.013$). Almost all respondents (98%) thought that ANC was important. Almost all women reached in this survey (97%) reported that they had attended ANC during the last pregnancy (intervention 98%, control 96%, $p=0.013$). ANC was received predominantly at a government health

[9] A modified version of dependency ratio (children/adults) was used.

facility (intervention 96%, control 96%). 62% of women in intervention districts went for the first ANC visit in the first trimester, compared to 43% in control districts (p <0.010). There were insignificant differences between women (63%) and men (62%) attending ANC in the first trimester in intervention sites. The result was much higher than in control districts, with only 43% women and 47% men attending early ANC. This result shows that MORE MAMaZ succeeded in encouraging at least 20% more women 15% more men to take up ANC early. In both intervention (95%) and control (94%) sites almost all men and women who went for ANC were offered HIV counselling and testing.

Respondents were then asked to list all the maternal danger signs that they knew. Significantly higher percentages ($p<0.05$) of female respondents in intervention sites mentioned a particular danger sign in all nine danger signs assessed. This result was similar to that observed for male respondents where males from intervention districts scored higher in all the nine danger signs assessed, with statistically significant differences in eight out of the nine assessed. In control districts 37% of female respondents mentioned three or more danger signs. The respective percentage was significantly higher (68%) in intervention districts. Men in intervention districts were also statistically significantly more knowledgeable about maternal danger signs (intervention 70%, control 41%; $p<0.01$).

When asked about preparing for a possible maternal emergency, women in intervention districts mentioned a wider range of actions, including saving money and food (intervention 76%, control 49%); plans for emergency transport (intervention 43%; control 26%) and knowing maternal danger signs (intervention 36%, control 16%). 33% of female respondents in intervention districts mentioned at least three items compared to 14% who did the same in control districts ($p<0.010$); and 32% of male respondents in intervention districts mentioned three or more items compared to a significantly less 15% of male respondents in control districts ($p<0.01$). More female respondents in intervention districts felt that the husband ought to save money (intervention 81%, control 68%) and have a plan for emergency transport (intervention 45%, control 42%).

The survey tool collected data on social inclusion. The results show that both females and males in intervention districts were more aware of initiatives to support socially excluded women (females 71% males 70% in intervention, compared to 51% and 61% respectively in control districts.) These differences were statistically significant ($p<0.01$ in both cases). Efforts were being made in providing assistance for farming and childcare in most districts, while inclusion in group activities (73%), development of friendships (72%) and provision of financial assistance (65%) were more pronounced in intervention districts only. In intervention sites, 17% of the poorest quintile reported paying a fine for delivering at home, while none of those in the wealthiest quintile did. In sharp contrast, as many as 40% of the poorest quintile and 16% in the wealthiest quintile in control districts reported that delivering at home attracted a fine. This result shows more favourable inclusion efforts in intervention districts. The percentage of women who reported that they received support from SMAGs did not vary much by wealth (wealthiest 34%, poorest 39% $p=0.053$), showing that SMAGS seemed to support all women regardless of wealth status, and that the support was skewed towards the poorest women.

Knowledge levels were measured by the percentage of respondents who knew three or more maternal danger signs, and checked against wealth ranking (richest and poorest quintiles) and were generally higher

in intervention districts (68%) than in control districts (38% p<0.01). A weak (r^2= 0.24) and insignificant (p= 0.291) correlation was observed in intervention districts. The respective statistics were r^2= 0.11 and p = 0.635 in control districts, indicating a weaker and also insignificant correlation as well. A strong correlation existed between the number of discussion sessions and the percentage of women who knew 3 or more danger signs (r^2=51%).

All respondents were asked to provide an opinion on whether wife beating was on the decline in their communities over the past couple of years. A significantly higher number of females reported decreases in intervention compared to control areas (intervention 88%, control 76% p<0.010). This pattern was also observed for male respondents (intervention 89% control 72% p<0.010). Control districts of Mbala (68%) and Mumbwa (73%) had the lowest number of female respondents who indicated that wife beating was on the decrease. Chitambo (93%) and Mongu (90%), both intervention districts, had the highest. In intervention districts, the decline was largely attributed to the work of the SMAGs (79%) and counselling support provided by health workers (57%). In control districts, the changes were perceived to have been caused by counselling support from health providers (60%) and the police (60%). In intervention sites, women who indicated that they did not receive the support and respect as they needed were more than twice as likely to disagree with the notion that wife beating was on the decline (10% vs 27%, p<0.01).

Both female and male respondents were asked to indicate if they felt that health workers were communicating better. 92% of all respondents in intervention sites indicated that communication was better, while 88% in control districts also agreed (p=0.046). However, 18% of females in intervention and 14% in control districts also went on to report that they had opted not to use a health facility because of the negative attitudes of health personnel (p<0.012). The respective percentages for male respondents were 20% in intervention districts and 13% in control districts (p<0.011). The largest percentage of women reporting that they had opted not to use a health facility were from Mkushi (33%), an intervention district, followed by Kapiri Mposhi 18%, a control district.

Emergency Transport Schemes (ETS) were used for ANC in all intervention districts, mostly by women in Mongu (36%) and Chama (33%) where distances to the health facility are considerable. This is a local adaptation since these schemes were originally established in the intervention sites to support the transfer of women to health facilities for delivery. Formal community based ETS services were not available in all 4 control districts, although a facility based service was available for some communities in Samfya. Both female and male respondents were asked to indicate how they got to the health facility to deliver their babies. The results show that ETS was widely used by women in intervention districts (30%); followed by walking (27%), public transport (16%) and own bicycle or cart (16%). In control districts, the predominant mode of transport was public transport (40%) followed by walking (24%) and own cart or bicycle (17%). Hence there was a higher level of reliance on potentially slower forms of transport in the control sites.

When asked who had delivered the baby, both female and male respondents in intervention sites gave consistent responses where nurses or midwives (59%); doctors (11%); and traditional birth attendants (TBAs) (11%) delivered most of the babies. In control sites, significantly more TBAs, relatives and other non-skilled birth attendants delivered babies. The baseline situation in the intervention sites was 46%,

and hence a 32% increase in skilled birth attendance occurred over the timeframe of MORE MAMaZ. The percentages of SBA deliveries were highest in Chitambo (90%), Mongu (85%) and Serenje (83%) and lowest in Kapiri Mposhi (50%), Chama (69%) and Samfya (61%). Most births were normal vaginal deliveries (intervention 98%, control 96% p=0.46); with 3% being C-sections (intervention 2%, control 4% p=0.46).

There are discrepancies in the number of babies delivered at a health facility and those delivered by a skilled birth attendant. In three districts in particular, the number of facility deliveries were much higher than the number of SBA deliveries: Samfya (34% difference), Chama (36%) and Mongu (6%). It seems that women are going to the health facilities to deliver but are not assisted by a skilled attendant. The lack of SBAs in some districts is a supply-side constraint that has the potential to undermine the work of the SMAGs.

A total of 311 women (13%) reported that they delivered their babies at home or at the home of friend. These were made up of 91 women in intervention sites (7% of all women surveyed in intervention districts) and 220 (20% of women interviewed) in control sites. The reasons why these women chose to deliver at home included unexpected deliveries with short labour, deliveries before the due date and cases where the woman was alone. Distance or lack of transport was the second-most cited reason.

A total of 330 women (187 in intervention districts and 143 in control) indicated that they had had a maternal complication. This represents 15% of all women surveyed. The leading complication that was reported by women was severe bleeding from the vagina (intervention 20%, control 30%), followed by swollen hands and feet (intervention 16%, control 10%) and severe headache (intervention 13%, control 13%). Severe bleeding from the vagina and swollen hands and feet were the only complications that were significantly different between intervention and control districts ($p<0.05$), with both more reported in the intervention districts. In each of intervention and control sites, 80% of women reported that they tried to get to the facility when the complication occurred. The majority of women in control districts walked (31%), used public transport (26%) or relied on a community member (16%). In intervention districts, transport options were more diverse, including walking (27%), own cart or cycle (14%), and ETS (13%). The results seem to show that ETS has met a need for emergency transport.

Almost all females 90% (intervention 93%, control 87% $p<0.010$) indicated that they had sought PNC. 92% of male respondents also indicated that their partner had taken up PNC (intervention 93%, control 90% p= <0.010). A significantly higher 13% of women in control districts had not taken up PNC compared to 7% in intervention districts ($p<0.010$). By district, the highest percentages of women not taking up PNC were registered in Kapiri Mposhi (20%), Mbala (16%) and in Samfya (11%), all control districts. The highest rates of PNC uptake were observed in Mongu (99%); Mumbwa (98%), Chama (90%), Mkushi (90%), Serenje (90%) and Chitambo (90%). The percentage of women who reported that they went for PNC within 6 days was 48% in intervention districts (baseline was 42%), significantly higher than 39% recorded in control districts. Most women received PNC at a health facility (93%) and few at an outreach activity in the community (6%).

The percentage of women who reported that health workers had talked to them about family planning was a high 75% (intervention 79%, control 71% $p<0.010$); and equally high among male respondents (76%)

but without significant difference between district types (intervention 77%, control 76%; p=0.223). A significantly higher proportion were using a method in intervention districts (38%) than in control districts (27%, p<0.010). The baseline situation was 26%, which indicates that use increased by 12% in intervention districts over the timeframe of MORE MAMaZ.

Use of family planning was not correlated to the state of the home environment nor to how the woman seemed to look after herself. In intervention districts, 36% of women with a well-kept home environment were using a modern method of family planning, compared to 37% whose home environment was deemed to be untidy (p=0.433). This suggests that MORE MAMaZ has enabled less-supported women to access essential MNH services.

The MAANDA initiative seeks to empower women. MORE MAMaZ was designed to achieve this, in part, by empowering women to take necessary steps to achieve a safe pregnancy. The results show that the number of women who felt empowered to achieve a safe pregnancy was nearly 30% higher in intervention than in control sites. In addition, women in intervention districts reported a diverse source of support including, SMAGS, ETS and community food banks all of which were absent in control districts.

The survey collected data on a range of variables to measure MORE MAMaZ's progresses towards attainment of set objectives. The programme seems on track to achieve its set objectives, especially in relation to knowledge and attitudes. The survey has shown that very significant changes in practice are underway, especially in relation to facility delivery and skilled birth attendance, where large percentage increases in utilisation were recorded.

Conclusion

This survey sought to collect adequate data to test whether MORE MAMaZ interventions were achieving desired programme objectives. This was largely achieved. It can be concluded that MORE MAMaZ activities have resulted in positive changes in knowledge of maternal danger signs, birth preparedness and knowledge of community schemes. Changes in practice are also positive, and correlate with knowledge and attitudes.

MORE MAMaZ interventions in support of pregnant women with knowledge, emergency transport and social funds are resulting in more women feeling empowered to achieve a safe pregnancy and opting to deliver at health facilities. The survey has concluded that the majority of babies delivered at health facilities are delivered by skilled birth attendants, although in some districts, shortages of skilled health workers reduce the number of facility deliveries that are SBA deliveries.

Recommendations for MOH and DHMTs

- Ensure that the national roll-out of the SMAG initiative focuses on addressing all the barriers that prevent MNH service utilisation – not only lack of knowledge. This will involve placing considerable emphasis on SMAGs supporting the development of community response systems.
- Test ways to extend the focus of SMAG volunteers so that they play a bigger role in relation to family planning and broader sexual and reproductive health issues, and other PHC issues.

- Ensure that outreach services provide ANC and PNC services as a matter of course.
- Ensure that adequate numbers of SMAGs per community are trained (6-10) so that entire communities can be reached and empowered to support women and girls' health and well-being.
- Ensure that health providers are aware than facility-based fines for women who have a home delivery contravenes government policy. Encourage traditional leaders to drop the practice of introducing fines for home deliveries.
- Emphasise use of contraception as good practice, and put in place mechanisms for provision of reproductive health services at community level or at centres accessible to most women.
- Continue to provide support to SMAGs through a formal supervisory system provided by health facility staff. This will allow them to keep up the good work they are doing with empowering pregnant women.
- Support further exploration of the social factors (e.g. being under-supported or feeling not respected) that affect health access and outcomes.
- Ensure that SMAGs have adequate capacity to address GBV as part of their safe motherhood work.
- Ensure availability of transport from community to health facility is considered as part of overall strengthening referral systems. Community based emergency transport systems can fill a substantial gap

Recommendations for future programmes

- Emphasise ANC practice in trainings and put in place mechanisms for tracking use of knowledge gained. For example, as part of routine programme implementation and monitoring, SMAGs can emphasise the importance of practicing what women are taught and report on observed practices and barriers to implementation of lessons (include for example, a log of each woman's implementation of learnt lessons, including a recording of what is provided at the health facility with each ANC or PNC visit).
- Continue to link demand- with supply side interventions and engage in advocacy to ensure that all facilities have SBAs.
- Continue to monitor the sustainability of positive impacts of MORE MAMaZ interventions on gender- based violence.
- Continue to enable the scale up of MORE MAMaZ interventions by producing materials that can be adopted by partners, including government. Specifically, provide support for the development of policies that facilitate the work of SMAGs, and continue to provide support to districts that choose to adopt the MAMaZ approach.

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1 Introduction

1.1 Background to MORE MAMaZ

The MORE Mobilising Access to Maternal Health Services in Zambia (MORE MAMaZ) Programme is a partnership initiative between the Government of the Republic of Zambia (GRZ) and a consortium comprising Transaid, Health Partners International (HPI), Development Data, and Disacare. MORE MAMaZ is funded by Comic Relief. The programme expanded activities of the MAMaZ programme which was implemented by HPI between 2010 and 2013 and funded by DFID. MORE MAMaZ began in April 2014 and will run for 30 months to 30 September 2016. The programme is being implemented in support of the Comic Relief Maanda Initiative theme of improved health for women aged 15-49 and children under five.

MORE MAMaZ was designed to scale up approaches that address the factors at household and community level that prevent timely utilisation of emergency maternal and new-born health (MNH) care services, utilisation of other essential maternal and new-born health services, and provision of appropriate support to women of child bearing age. MORE MAMaZ specifically aims to increase utilisation of maternal and new-born health services among rural communities by supporting government partners to scale up a community engagement (CE) approach tested during MAMaZ.

MORE MAMaZ is implemented in five districts (Chama, Mkushi, Mongu, Serenje and Chitambo) where activities that were tested in MAMAZ are being scaled up by increasing the coverage of community engagement activities to a target 100% over the programme's lifetime (from a current average of 25% population coverage). Capacity building of local partners (District Health Management Teams - DHMTs) is focusing on building a secure, long-term institutional home for demand-side health-related issues. MORE MAMaZ has a strong learning component that was designed to capture sustainable ways to intervene at community level in support of improved maternal and new-born health. The partnership with the Ministry of Health (MOH) was crafted at the time the Department of Mother and Child Health was under the Ministry of Community Development, Mother and Child Health (MCDMCH) and is guided by a memorandum of understanding. MORE MAMaZ thus supports the operationalisation of the Ministry's health strategy and national scale up plan for Safe Motherhood Action Groups (SMAGs) training and other community-based demand-side interventions.

A component of MORE MAMaZ addresses the women's empowerment agenda by increasing awareness of maternal and new-born health issues, addressing care access and affordability barriers, and tackling underlying social problems (such as gender-based violence (GBV)) that contribute to negative health outcomes, in an integrated and culturally appropriate way. The programme places significant emphasis on male involvement and the participation of traditional leaders. MORE MAMaZ's approach strengthens existing structures, especially the work of SMAGs.

1.2 Purpose and Objectives of the Endline Survey

1.2.1 Purpose

This endline survey was conducted to establish the extent of success (or lack thereof) of the MORE MAMaZ initiatives in five intervention districts. Survey results were required to establish the extent of attainment of programme objectives. MAMaZ, the predecessor programme to MORE MAMaZ, already established that the MAMaZ approach works. MORE MAMaZ was therefore implemented in new intervention sites in five out of the six districts in which MAMaZ had been operational., and focused on scaling up to achieve a higher population coverage.

In MAMAZ, the hypothesis that the MAMaZ programme had an impact in increasing maternal access to health was established as fact. By addressing demand side factors that limited use of health services, MAMaZ interventions showed positive effects on maternal and neonatal morbidity and mortality. A robust evaluation of these demand-side interventions was based on collection of baseline and endline information in programme intervention and control districts. In MAMaZ, baseline and endline surveys captured changes in a range of key health indicators related to knowledge and behaviour while the Community Monitoring System (CMS) tracked the utilisation of community systems. For example, the proportion of pregnant women who knew to attend ANC in the 1st trimester increased from 47% to 71%; there were significantly more women at the health facilities in intervention districts (83%) than in control districts (70%) when complications arose; and skilled birth attendance rates (SBA) rose from 43% to 70%, an increase of 27%. All the data collected in MAMaZ was available for MORE MAMaZ.

A baseline survey for MORE MAMaZ was deemed unnecessary. Instead, data collected from baseline and endline non-intervention sites at the end of MAMaZ was used to establish the baseline for MORE MAMaZ.[10] The purpose of the MORE MAMaZ endline survey, therefore, is to establish the extent of progress in intervention sites compared to both baseline situation and to what is occurring in control districts.

In the intervention sites, lead community volunteers called Mama SMAGs were supported to train a larger group of regular volunteers (SMAGs), and given on-going support. SMAGs were taught how to conduct community-wide awareness raising meetings, systematic community discussion groups and assistance with establishing emergency transport systems (ETS) and other community response systems (i.e. food banks, emergency savings schemes, child care schemes, and a system of mother's helpers). In control districts, an assumption was made that none of the MAMaZ type interventions were taking place.

[10] A description of this approach is given later in the report.

1.2.2 Objectives

The **main objective** of the endline survey was to collect adequate data to test whether MORE MAMaZ interventions were achieving desired programme objectives, and establish the magnitude of impact of programme interventions. The main objective was thus to assess in programme beneficiaries and control sites, current attitudes, knowledge and maternal health practices and establish programme impact and outcomes. The specific objectives were:

- To collect post intervention data to compare changes in attitudes, knowledge and practices arising as a result of the programme's demand-side interventions by examining, among others, changes in knowledge of maternal danger signs, birth preparedness and knowledge of community support systems.
- Establish actual use of skilled or facility based delivery services for routine and emergency care.
- Make recommendations for future programme design and for policy formulation and/or adaptation.

2 Methodology

2.1 Survey Design

The endline survey was designed as a cross sectional quantitative household survey that targeted programme beneficiaries (women, men) in intervention sites and similar respondents in control sites. Statistical methods were used to calculate sample size, margin of error and confidence levels. A structured quantitative data collection tool was used to capture statistical data from all women delivering in the six-month period leading up to the endline survey, and where available, their partners. A baseline for MORE MAMaZ was constructed using quantitative data that was collected from control districts at the end of MAMaZ. This baseline survey targeted all women delivering in the six-month period leading up to that survey, and where available, their partners were also interviewed.

The endline survey collected data from all five MORE MAMaZ districts: Mkushi, Serenje, Chitambo, Mongu and Chama; as well a further four control districts of Mbala (control district for Chama), Mumbwa (control for Mongu), Kapiri Mposhi (control for Mkushi) and Samfya (control for both Chitambo and Serenje)[11].

[11] Chitambo was recently established in 2013 as a separate district from Serenje. MAMaZ interventions were implemented at a time when Chitambo was part of Serenje. In MORE MAMaZ, however, Chitambo was treated as a separate district, with 3 out of 10 intervention sites including in the survey located in Chitambo, and the remaining 7 in Serenje.

The design of the survey thus matched each intervention district with a control; the same control districts used in MAMaZ.

2.2 Study Population

The primary survey population was women who had given birth within 6 months preceding the survey. Respondents were selected randomly from those that met set criteria which included having given birth within the last six months, (i.e. having been potentially exposed to interventions maximally); and willing to take part in the survey. This included unmarried women below the age of 18 who had delivered, provided parental consent was given. The sampling frame was based on registers at health facilities and with community health workers in both intervention and control sites. An initial list of all eligible women was obtained at health facilities, and thereafter, expanded to include that kept by SMAGs and community health workers to identify other eligible women, especially those who had delivered at home. SMAGs and Neighbourhood Health Committees (NHCs) were identified within survey areas in advance, and these facilitated access to survey respondents.

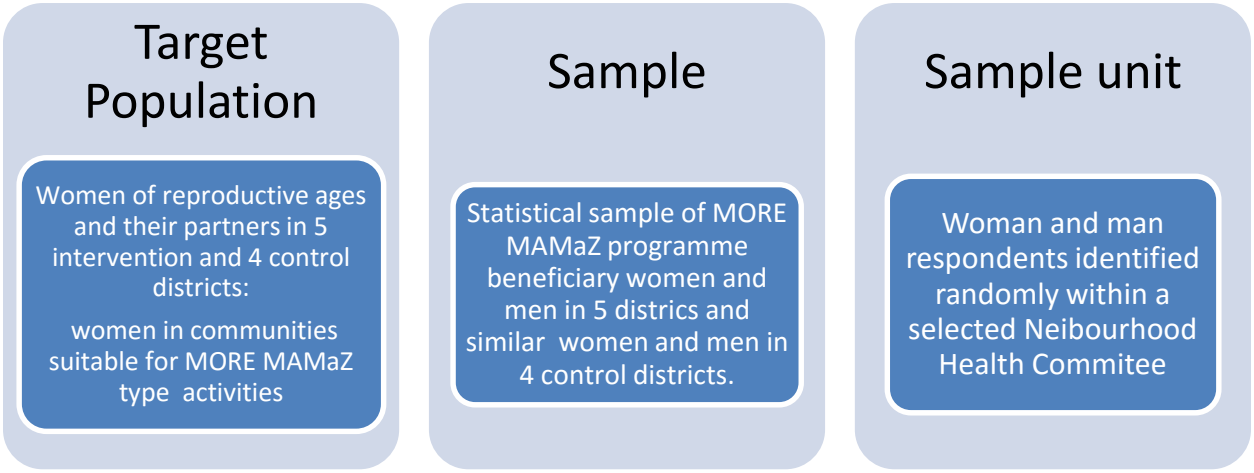


Figure 1 Sampling process followed

Inclusion:

- Women of all ages delivering in the six month period leading up to the survey
- Partners of women who had a child in the 6 months preceding the study

Exclusion:

- All women and their partners who had not had a child within 6 months preceding the survey

- All women and their partners meeting the inclusion criteria but refusing to participate in the survey[12]

2.3 Sample size calculation

The sample size for this survey was calculated to provide a statistically robust base to measure programme indicators. A total of 8 study domains were assumed (4 control districts, 4 intervention districts (Chama, Mkushi, Mongu and treating Serenje and Chitambo as one domain). Each district population of eligible women is in the thousands. To determine the total effective sample size, probability statistical sampling methods were used, also ensuring that each eligible woman had an equal chance of being selected. The required sample size for each domain was calculated using the Cochran's sample size formula for categorical data[13] with 90% level of confidence and a margin of error of 5%. The sample size per domain was designed to give 90% CI with 5% margin of error. The sample size required for the survey was 2,406 respondents from 240 Neighbourhood Health Committees (NHCs) as calculated below:

$n=Z^2 [P(1-P)/e^2]$ where:

- Z=normal distribution value for 90% confidence level
- P=(1-P)=0.5 which maximizes variance of categorical data
- e = margin of error accepted (0.05)
- a design effect of 1.1 to counter bias introduced by clustering by NHCs
- 1% non-response rate
- 8 domains

Table 1 Sample size calculation

Z	Z^2	P	e	e^2	n	d.e.	resp rate	final n	no of domains
1.645	2.706	0.5	0.05	<0.0125	270.6	1.1	0.99	300.7	2405.356

From facility registers, it was established that at least 20 women per NHC met the eligibility criteria. Clustering by NHC, 10 eligible women would be sampled per NHC, resulting in 30 NHCs required per domain. Noting that Chitambo and Serenje constituted a domain, the sample size of 300 allocated to these districts was split proportional to the number of intervention sites covered, that is, in the ratio 3:7. The sample size for Chitambo was planned at 91 and that of Serenje at 210, coming from 9 and 21 NHCs respectively.

[12] In the endline survey, three such cases were encountered, and the records not used. In one case, a minor (aged 16) got the required consent but the mother insisted on providing the responses herself. In another case, a woman refused to participate but did not give reasons. The third case was that of a male respondent who said he was very busy.

13 Cochran, W. G. (1977). Sampling techniques (3rd ed.). New York: John Wiley & Sons.

Table 2 Calculated sample sizes

District	*Sample size*	*Approximate NHCs*
Chitambo	91	9
Serenje	210	21
Mkushi	301	30
Mongu	301	30
Chama	301	30
Samfya (Chitambo/Serenje control)	301	30
Kapiri Mposhi (Mkushi control)	301	30
Mumbwa (Mongu control)	301	30
Mbala (Chama control)	301	30
Total	**2,408**	**240**

Additional criteria were set for selecting suitable NHCs for inclusion in the survey. It was deemed necessary to visit NHCs with key programme activities such as emergency transport systems, food banks and community emergency savings schemes. Some outlying NHCs were also included.

2.4 Data collection tools

To meet the endline survey's main objective of measuring the changes brought by MORE MAMaZ interventions; similar tools and approaches to those used at the start and end of the previous MAMaZ programme were used. Additional questions were added to track aspects such as GBV and empowerment which are important to Comic Relief's Maanda Initiative, but not included in previous MAMaZ surveys. A significant change in tool design was in separating the questions so that women and their partners were interviewed separately. During MAMaZ, one tool was used to get combined responses from women and their partners together.

The draft tools were pre-tested in Lusaka province. The objective of the pre-test was to ascertain adequacy of the questions in collecting the required data; and to also train enumerators in field-like settings. This proved to be critical in assisting the team to translate some of the terminology into local languages.

2.5 Fieldwork

2.5.1 Recruitment and training of Enumerators

Highly motivated, well-trained field staff are essential for a successful survey. A total of 40 enumerators and 5 team leaders were recruited, including 15 who had participated in previous MAMaZ surveys. A strict set of criteria was used to identify suitable enumerators:

- Knowledge of the local languages in survey areas.[14]
- Experience in conducting similar surveys.
- Acceptable education level (at least a diploma from a recognized institution of higher learning).
- Experience in health research was an added advantage. Survey supervisors were selected from Master of Science in Public Health students.
- Gender balance: 60% of enumerators were female.

Enumerators were trained over two days. Training covered the background to MORE MAMaZ, procedures for conducting the survey, familiarisation with study tools, and logistical arrangements for field data collection. Enumerators were put into four teams, each team covering an intervention domain and its control. Enumerators were trained to conduct interviews in exactly the same way regardless of domain.

2.5.2 Mobilisation for data collection

Mobilization was a key element in the successful undertaking of the endline survey. MORE MAMaZ obtained approval and letters of introduction from the Ministry of Health who also informed DHMTs in advance. District Medical Officers (DMOs) received copies of these introductory letters before the commencement of field work. Additionally, prior communication and planning involved district based MORE MAMaZ programme personnel. The MORE MAMaZ district programme officers (DPOs) were particularly instrumental in mobilising health facilities, local leaders and communities. SMAGs and other community volunteers in all the districts played an indispensable role in identifying eligible respondents.

2.5.3 Field data collection

Field data collection was conducted between 14th March and 6th April 2016. Before the teams embarked on actual data collection in each district, they paid courtesy visits to DHMTs where they met District Medical Officers, District Health information officers, and District Nurses-in-charge. These authorities were given copies of the questionnaires, consent forms and information sheets that were used in the study.

Figure 2The research team in Central Province meeting the town planner for a debriefing in Mkushi before dispatching for fieldwork.

During the meetings, the research teams convened for meetings with the DPOs who explained to the team what to expect in the different communities in terms of language, beliefs and other values that would directly or indirectly influence the research. DPOs and the research teams took some time to become familiar themselves with the research tools in terms of certain local terms that are used in each sampled community.

[14] Zambia has 72 local languages, and in some surveyed areas such as Chama, as many as 5 local languages were encountered.

These meetings ensured that enumerators maintained good relations between the programme and the communities visited. Data collection commenced on the 15th March for the teams in Central, Eastern and Northern Provinces and on 16th March in Western Province.

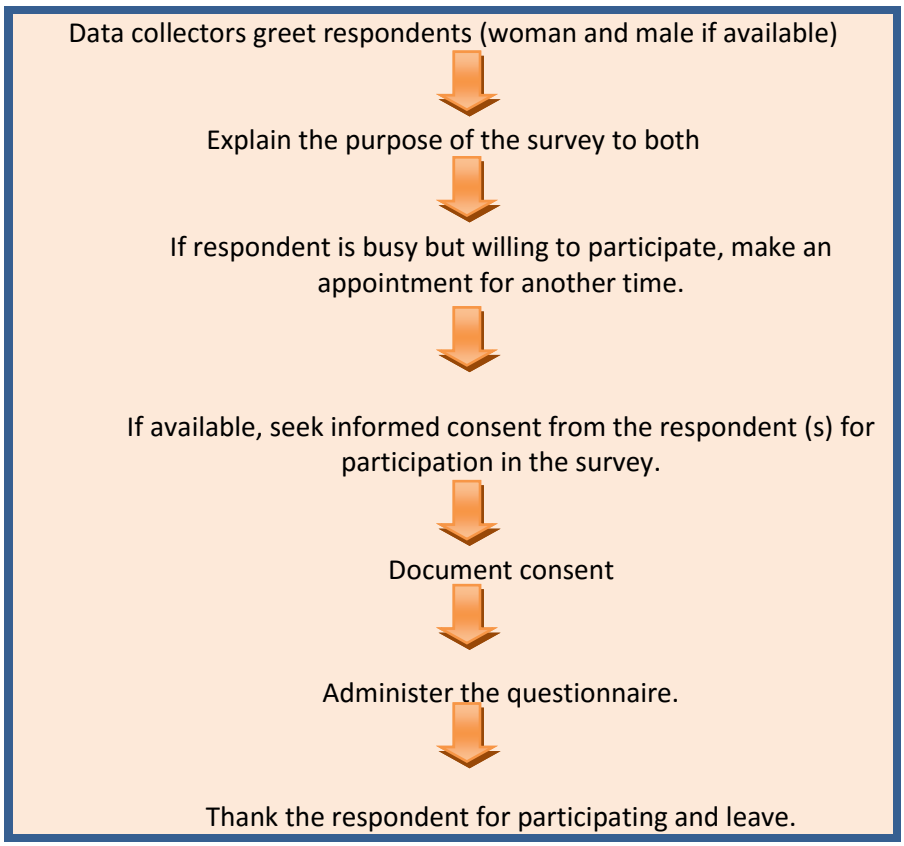
2.5.4 Identification of respondents

A three-stage process was used to identify respondents in each district or domain. At the first stage, the district was sub-divided into different clusters (villages) based on each health facility's catchment area and NHCs. Secondly, the number of respondents required from a health facility was calculated to be proportional to the size of the health facility's catchment area population. The third and last stage involved the selection of individuals that met the inclusion criteria of the study- all mothers as well as their partners who had children less than 6 months old were sampled following a snowballing effect until the required number was reached. SMAG records in intervention sites were used to randomly select the required registered women. Male respondents were included only for women who had been selected, and only where the male partner was available and willing to participate.

For the control site, a list of all rural set-up sites that had deliveries in the last six months was obtained from the District Health Office. Health facilities were randomly selected. The second phase involved obtaining a list of all the villages surrounding the health facility and random sampling was applied in order to obtain the first household. Thereafter, snowball sampling was used to obtain households with children less than 6 months old. In the event that the team did not meet the target number in a specific village, replacements were made by spreading the deficit proportionately among the remaining NHCs.

After getting clearance from the local authorities at district and community levels, the research teams commenced fieldwork. The procedures for data collection as explained during the training were followed. These involved the following steps.

Table 3: Interview process



2.5.5 Quality control measures

Team supervisors held daily debriefing meetings before and after each day in the field. This was done so as to effectively plan for the day and assign enumerators to their respective locations. Enumerators were also informed of their daily targets. Questionnaires were counted at the end of each day to enable the teams to identity gaps and re-strategise in order to meet the target. Discussions were also held to allow team members to share challenges and find ways of overcoming them. The team leaders monitored each enumerator throughout the data collection period. Progress and quality of work was also checked to ensure correct data collection. The team supervisors ensured that completed tools were safely stored on a daily basis.

Regular spot checks were conducted by the team leaders during data collection, at the end of each day or in the morning before teams were dispatched. Once checked for quality and certified correct, the filled questionnaires were safely stored. Data entry was done in Lusaka by trained data entry clerks under the supervision of MORE MAMaZ programme partners. The Ministry of Health supplied two senior staff members as independent observers: one in Chama and one in Mkushi; and a DHMT representative who observed the survey implementation in Mongu.

2.6 Data analysis

Data collected using the survey questionnaire was entered into the computer in IBM SPSS (version 21), cleaned and stored for analysis. Descriptive analysis (frequencies, cross-tabulations and comparisons) and hypothesis testing were completed using SPSS.

2.7 Ethics

Consultations were guided by a protocol that was developed and submitted to Eres Converge for ethical approval. Participation was informed, voluntary and information collected was treated as confidential. All respondents provided written consent to participate in the study and used their language of choice to provide input. Verbal consent was given where the respondents were illiterate, and this was backed up by a thumb print on the consent forms. With respondents under the age of 18, their parents or guardians were approached to provide consent.

The research teams were given strict considerations around the standard of care, informed consent across cultures, privacy and confidentiality, stigma and discrimination, protection of vulnerable groups, community consultation, ethical review mechanisms and international collaboration. The following ethical standards were adhered to:

a) Indicating to participants that they had the right to choose whether they wanted to participate in interviews or not and that they would not be discriminated against in any way if they chose not to participate. Participants were also informed that they were not obligated to answer any questions that they did not feel comfortable to answer.
b) Ensuring non-disclosure of participants' information.
c) Respondents were briefed on their participation in the assessment study and requested to provide written informed consent prior to data collection.
d) All participants were asked if they had any questions or concerns about the study.
e) All persons who agreed to participate in the survey were required to provide either written or verbal consent to participate in the study in their preferred languages.

2.8 Limitations

Some challenges and limitations were encountered as given below:

- The second week of the data collection coincided with the Easter Holidays and this led to some delays as targets were not met on holidays.
- There was poor mobile network in most survey locations, which made mobile communication amongst researchers difficult. This limited the amount of real-time field support offered to enumerators by team leaders.

- Finding male respondents in communities during the day time proved to be difficult as most had either gone to the farms, fishing or charcoal burning camps.
- Language diversity was a challenge as there were smaller ethnic groups that could not speak the languages generally spoken by people in the targeted communities. In such cases, help with translation was obtained from SMAG members; with caution taken to ensure the interviews were not negatively affected. This increased the time taken to complete interviews.
- Some roads were impassable. Moving from one household to the next was difficult and time consuming. In Chama and Mbala, poor roads led to some vehicle break downs which further increased the amount of time spent in the field.
- Some women who had babies were not married nor living with their partners, limiting the sample size of male respondents.

2.9 Lessons from the survey

- Courtesy calls made to Provincial Administrators, District Administrators and Chief Executive Officers in each district ensured a smooth flow of data collection activities.
- Regular communication among the team leaders and the survey manager (via WhatsApp) provided a mechanism for a speedy resolution of most challenges that were encountered. This subsequently resulted in increased quality and number of tools completed daily.
- The hiring of experienced and qualified enumerators, although costlier, was of great value as it ensured that the data collected was reliable and questionnaires were completed correctly and in a timely manner.
- The training that the enumerators underwent ensured that they were all well acquainted with the flow of questions and how to explain them to the respondents.

Figure 3: An enumerator collecting data from a male respondent in Mkushi District

- Enumerators were split up according to gender and languages spoken. This enabled them to effectively communicate with community members in the designated districts. It was also

important to take into consideration cultural values of different communities, e.g. where men are not able to freely discuss health and gender issues with women interviewers. It was therefore necessary to use male enumerators to interview men.

Figure 4: Samfya team of enumerators with some members of SMAGs from that district

- Working closely with SMAGS ensured timely coverage of set targets in the districts. In some NHCs, for example, some roads were impassable due to the heavy rains and SMAGs assisted by using their bikes to take the enumerators to the research sites. Also, respondents were more likely to cooperate with the research teams when the teams were accompanied by a known local person. SMAGs and community health workers were particularly important in identifying households that had eligible participants. SMAGs and community health workers were not allowed to observe or be within earshot of interviews.

3 Literature review

An extensive literature review was conducted to shape the methodology used in this survey, as well as document what is already known from previous studies. This section outlines key findings from the literature review.

3.1 Overview

Despite recent improvements in some key areas, maternal and newborn health indicators in Zambia remain a concern and are a conspicuous reminder of the multiple barriers that constrain women's and girls' access to and uptake of essential reproductive health services. Service delivery failures within the health sector combine with low consumer confidence in the quality of care, and a complex array of household and community level barriers (lack of awareness, gender inequality, social exclusion, lack of affordability, physical access) to affect both the decision to seek care and an individual's capacity to reach care.

3.2 Antenatal Care

The two key interventions known to reduce maternal mortality are the provision of skilled attendance at delivery and effective referral to emergency obstetric care when required. ANC is an important pathway to utilisation of these and other essential maternal health services. In many countries a positive relationship exists between the number of ANC visits and the likelihood of an institutional delivery. ANC also provides an opportunity for early risk screening (e.g. for HIV, other sexually transmitted diseases, and tuberculosis – particularly important in high HIV/AIDS contexts) and for imparting information and advice on birth preparedness, including what to do in the event of an obstetric emergency.

ANC service utilisation is high in Zambia. According to the 2014 DHS[15] 96% of pregnant women (99% urban and 94% rural) obtained ANC from a skilled provider during their last pregnancy. However, 76% of women delay their first ANC visit, with the median duration of pregnancy at first ANC visit being 4.8 months. As a result, large numbers of women are deprived of essential interventions in the early stages of pregnancy, such as access to iron supplementation, HIV testing, or early screening for pregnancy complications.

[15] Central Statistical Office (CSO) [Zambia], Ministry of Health (MOH) [Zambia], and ICF International. 2014. Zambia Demographic and Health Survey 2013-14. Rockville, Maryland, USA: Central Statistical Office, Ministry of Health, and ICF International.

There is also no guarantee that pregnant women will receive a quality service. For example, only 35% of clients in both Eastern and Central provinces had a urine sample taken at ANC compared to 58% in Southern province (DHS 2014).

There is a clear association between the quality of ANC service received and poverty status. The likelihood of having a urine or blood sample taken, being weighed, or being given iron tablets or syrup increases with a client's socio-economic status (Table below). This suggests that poorer clients are either having to rely on health facilities where lower quality services are on offer, or that they are discriminated against by providers *because* they are poor. Increasing women's and girls' awareness of their right to quality ANC services would help to put pressure on services from below. In addition, ensuring that health providers treat all their clients equally is key to ensuring equity of access to essential services.

Table 4 Relationship Between Quality of ANC and Poverty Status (2014)

Wealth Quintile	Blood sample taken	Urine sample taken	Blood pressure measured	Took intestinal parasite drugs	Weighed	Took iron tablets	Told About Maternal Complications
Lowest	88.6	23.3	78.5	55.3	92.9	92.6	81.1
Second	91.9	30.2	84.8	63.1	94.0	94.6	85.5
Middle	94.3	39.8	88.6	66.3	95.7	95.8	86.9
Fourth	96.8	51.9	96.8	68.1	98.4	97.0	93.7
Highest	99.2	68.4	98.4	71.0	98.2	97.7	94.5

Source: 2014 DHS

The 2014 DHS also confirms an association between the number of ANC visits and the likelihood that a woman will deliver in a health facility. Of the women who failed to attend ANC, only 14% delivered in a health facility, compared to 70% of women who attended ANC between one and three times, and 75% of women who attended four or more times. It is important to note, however, that rural institutional delivery rates have improved considerably since the 2007 DHS, from 33% to 56%.

High ANC utilization rates in Zambia are not systematically translating into high uptake of institutional delivery in rural areas. Although 94% of rural Zambian women attended ANC during their last pregnancy, only 56% had a facility delivery. In contrast, in urban areas where 99% of women received ANC, 89% had a facility delivery. The 44% of rural women and girls who continue to give birth at home are a key target group for demand side MNCH programmes.

3.3 Delivery practices

In relation to skilled birth attendance, five in ten rural births are attended to by a skilled provider, compared to almost nine in ten urban births - a striking rural-urban divide. The trend between 2002 and 2014 was towards fewer home births in both rural and urban areas. Despite the increase in the percentage of rural women having an institutional delivery, a strong rural-urban divide in access to institutional delivery remains.

Table 5 Trends in Uptake of Institutional Delivery/Access to Skilled Attendance

Institutional Delivery/Skilled Attendance[16]	2002 DHS (Institutional delivery)	2007 DHS (skilled attendance)	2014 DHS (skilled attendance)
Urban	79.0	83.0	88.5
Rural	27.9	31.3	51.6

Source: 2002, 2007 and 2014 DHS

As with ANC, socio-economic status is a key factor that affects women's access to a skilled birth attendant. While only 45% of the poorest women delivered with the support of a skilled attendant in 2014, this figure was 94% for the richest women. Between the 2007 DHS and the 2014 DHS the biggest increases in SBA among women occurred in the second and middle wealth quintiles (Table 3).

Table 6: Relationship between Poverty and Skilled Birth Attendance (2007 and 2014)

Wealth Quintile	Skilled Attendance 2007 (%)	Skilled Attendance 2014 (%)
Lowest	27.4	45.2
Second	28.2	52.2
Middle	36.6	62.3
Fourth	71.6	83.0
Highest	91.7	94.3

Source: 2007 and 2014 DHS

3.4 Post-natal care

The pattern of inequality in access to essential maternal health services is repeated in the case of post-natal care (PNC), with utilisation increasing the higher a woman's socio-economic status. While only 47% of the poorest women accessed PNC following their last birth, 84% of the richest women did so. Geographical disparities are also important: 82% of women in Copperbelt province received a postnatal check-up, compared to 44%, 71% and 58% respectively in Central, Eastern and Southern Provinces. The pattern of rural / urban disparity continues, with just 54% of rural women accessing PNC compared to 81% of urban women.

A high proportion of Zambian women have been informed of danger signs during pregnancy and delivery (96% of women attended ANC in 2014 and, of these, 88% were informed of the signs of pregnancy complications). However, the high national MMR of 398 means that this information is not systematically translating into lives saved. There are several possible explanations for this: the quality of information on danger signs given by providers is poor; lack of awareness is not the most important barrier to utilisation of emergency maternal health care services; or women are acting on their knowledge, but are being failed

[16] The data in the 2002 and 2007 DHS' are not completely comparable. The 2002 DHS asked respondents about the location of delivery (i.e. health facility, home or other), while the 2007 DHS asked respondents about skilled attendance (i.e. by a doctor, Clinical Officer, nurse/midwife).

by poor quality services. Demand-side maternal health interventions implemented within an operations research framework will provide insights into critical issues such as these.

The national median duration of exclusive breastfeeding is 4.1 months, some way short of the WHO recommended duration of six months. There are variations between provinces: Southern Province (5.6 months), Central Province (4.3 months), and Eastern Province (3.9 months). In other Sub-Saharan African countries the evidence suggests that immediate and exclusive breast-feeding are both areas that appear to be relatively amenable to change once communities have adequate information on their benefits.

3.5 Pregnancy planning and contraception use

International evidence suggests that up to a third of maternal deaths could be prevented by delaying marriage and first birth, preventing unwanted pregnancies, and eliminating unsafe abortion.[17] Zambia's total fertility rate, at 5.3, is higher than many other countries in sub-Saharan Africa. Yet knowledge of modern methods of contraception is high among both men and women in Zambia, with little variation based on age, location, educational or poverty status. In 2014 99.7% of currently married women and 99.5% of sexually active unmarried women knew of at least one modern method of contraception, and the average number of methods known (both modern and traditional) was 9 and 8 respectively. Factors other than lack of knowledge are therefore constraining utilisation of essential reproductive health services.

Despite a high level of awareness of family planning, 29% of teenagers aged 15-19 years have begun childbearing, a slight increase compared to the 2007 DHS. More rural than urban teenagers have started childbearing (36% compared to 20% - again showing little change from the situation in 2007), and there are large geographical differences (30% of teenagers in Central Province, 35% in Eastern Province, and 36% in Southern have started childbearing compared to 24% in Lusaka Province). Poverty is associated with early childbearing; 45% of the poorest teenagers have started childbearing compared to only 10% of the wealthiest. Improved access to information about the benefits of delaying pregnancy combined with better access to quality, confidential, adolescent-friendly sexual and reproductive health services will both be important parts of the solution. Actual fertility rates are universally higher than wanted fertility rates across all provinces and all socio-economic groups. Unmet need for family planning was 24% in rural areas and 17% in urban areas. Unmet need was 27%, 17% and 21% respectively in Central, Eastern and Southern Provinces.

[17] DFID, 2004, Reducing Maternal Deaths: Evidence and Action: A Strategy for DFID, London: UK Department for International Development.

3.6 Nutrition

Inadequate nutrition is directly or indirectly related to most maternal deaths. Anaemia may contribute to death during delivery (i.e. from post-partum haemorrhage), and recent research undertaken in Indonesia suggests a link between low calcium intake and pre-eclampsia, and vitamin A and zinc deficiencies and sepsis and haemorrhage. Prior to pregnancy, under-nutrition can cause stunting, which can be a determinant of obstructed labour. One in ten Zambian women are undernourished. Rates are higher among teenage girls (e.g. 16% of girls aged 15-19 are thin or underweight). Rates of undernourishment fell from 15% in 2002 to 10% in 2007, and then stayed the same in 2014.

3.7 Gender based violence

The 2014 Zambian DHS provides some important evidence on the extent and nature of gender violence in Zambia. The statistics are worrying, with 43% of women aged 15-49 years having experienced physical violence at some point in their lives (37% in the last 12 months). 17% of women and girls aged 15-49 years have experienced sexual violence (the figures for Central, Eastern and Southern Provinces are 14%, 15% and 23% respectively). Southern Province has the highest sexual violence rate in the country. Appallingly, 10% of women have experienced gender violence while pregnant. These percentages show little change from the situation reported in the 2007 DHS.

4 Findings

This section presents the findings from the endline survey. Findings are compared with those from the baseline and in control districts. Most of the analysis is conducted by sex, and by district (control/intervention) and where necessary or important, by other aspects such as wealth ranking, being a volunteer, and age. Further analysis is undertaken based on perceived differences in social support and respect and observed differences in the way women look after themselves and their homes (indicators that relate to social exclusion and vulnerability).

4.1 Description of the survey sample

Data was collected from 2,350 women and 1,188 of these (51%) had their partners completing the survey as well (See table below). The total sample size was thus 3,538. Considering only women respondents, 98% of the total planned sample size was reached, well within the margin of error. Serenje and Chitambo together constituted a domain made up of communities served by 10 health facilities (MORE MAMaZ sites). Three of these sites are in Chitambo and the survey visited three sites in Serenje and one in Chitambo. The combined sample size for Serenje/Chitambo was 398 women and 137 men.

The survey sample included 166 females and 74 males below the age of 18. These were distributed across all 9 surveyed districts, with most females aged below 18 years old (38) interviewed from Mkushi.

District Type	District	Female	Male	Total
Intervention	Serenje	268	121	**389**
	Chitambo	30	16	**46**[18]
	Chama	291	136	**427**
	Mkushi	267	145	**412**
	Mongu	371	180	**551**
Control	Samfya	280	168	**448**
	Mbala	334	136	**470**
	Kapiri Mposhi	264	127	**391**
	Mumbwa	245	159	**404**
Total		**2350**	**1188**	**3538**

The average age of female respondents was 28.3 years in intervention and 28.6 in control districts, with no statistical significant difference. The respective average ages for males were 28.0 and 28.1 (p=0.134). The age distribution is given in the pyramid below, and shows that females were slightly younger than males. This difference, however, was not statistically significant (p=0.21).

The mean number of pregnancies recorded for females was 3.76 in intervention sites and 3.90 in control sites. There was no significant difference in the number of pregnancies across districts and when compared by intervention and control (p=0.64). The number of pregnancies was closely related to the number of children, 3.392 in intervention and 3.432 control districts respectively. The average number of

[18]Chitambo and Serenje data constitute a domain, with sampled drawn in proportion to programme intervention sites. Nevertheless, analysis has been performed for each district to check for consistency.

children who had died was slightly lower in intervention districts (0.55) than control (0.56) although not statistically significant (p=0.75).

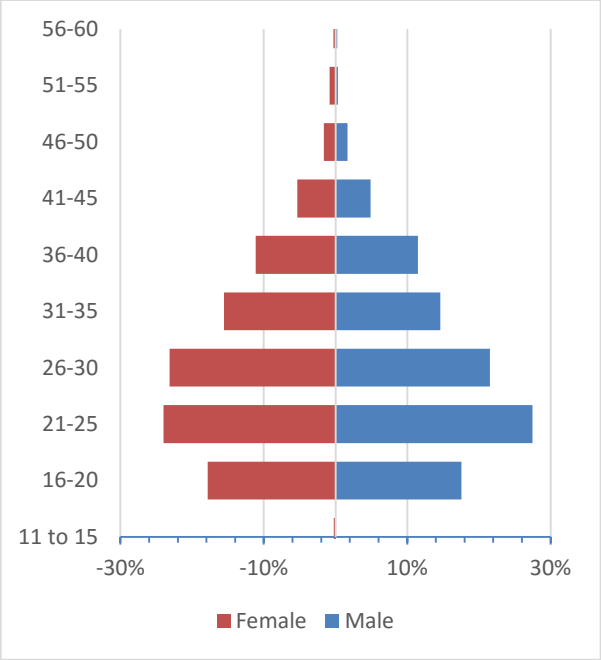


Figure 6 Distribution of ages of respondents by % in age group

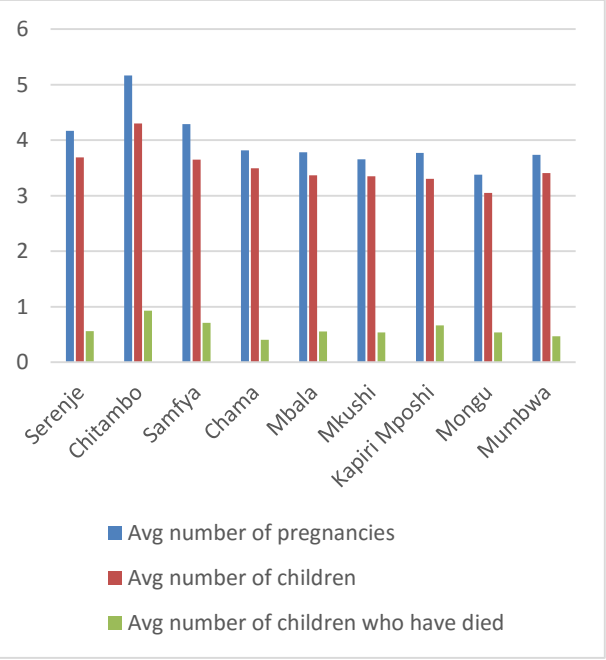


Figure 7Distribution of average number of pregnancies, children and children who have died per female respondent

In terms of education, female respondents indicated that they had attended on average, 6.40 years of schooling, while males indicated an average figure of 6.26 years. Three districts, Samfya, Chama and Mbala recorded the highest percentages of respondents without any formal education (see graphic below).

With regards to being a volunteer, 13% of female and 11% of male respondents in intervention sites mentioned that they were SMAGs. In contrast, 5% of females and 4% of males were some form of volunteer in control districts. Almost all the respondents (95%) who mentioned being SMAGs were also some other type of volunteer. 7% of female and 8% of male respondents in the intervention sites were ETS riders. There was no organisation providing any formal ETS in the control districts that were surveyed.

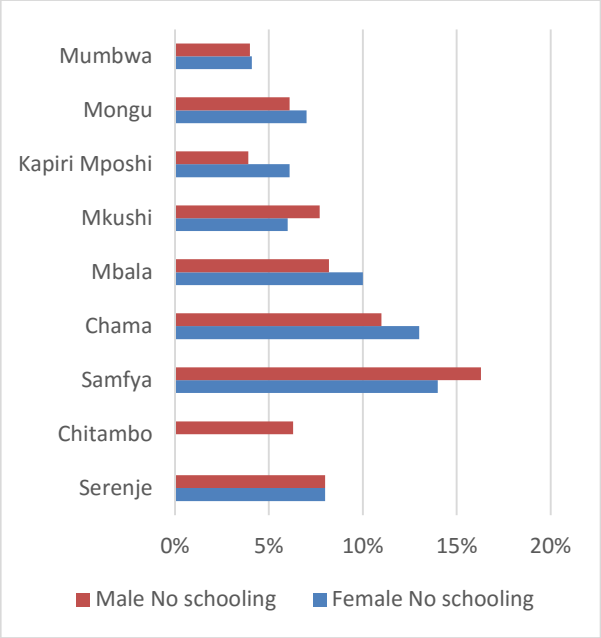


Figure 8 Percentage of respondents reporting no schooling at all

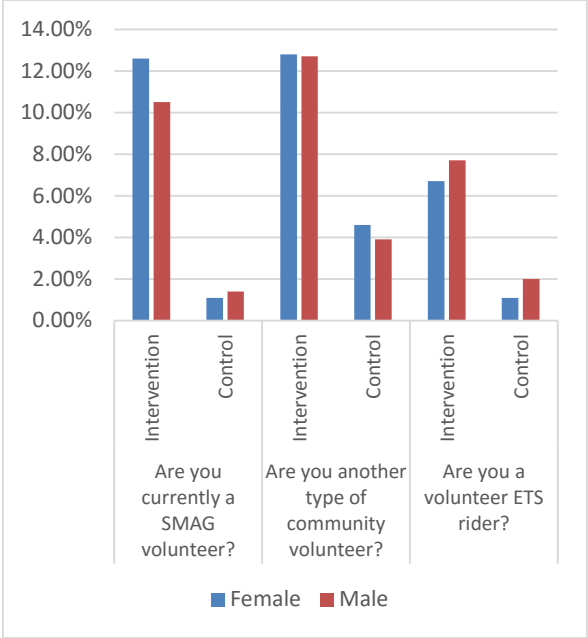


Figure 9 Volunteerism by type of district

Enumerators were asked to assess the condition of the home environment and the land around it. They were also asked to observe and record the extent to which woman respondents seemed to look after themselves. A simple dichotomous scale was used for both questions, "well kept" and "not well kept" for the first question, and "looks after herself well" and "does not look after herself well" for the second. Although these were subjective measures, in training enumerators were asked to observe aspects such as cleanliness of the yard and surrounding, clothes and utensils in coming up with a decision. They were instructed to record "Don't Know/Not observed" if they did not visit the woman's place of dwelling, that is, if the interview took place away from the residence. They were also asked to consider the type of activity in which the woman was engaged when the interview took place (a woman at Church would easily look different from one at the field.) The results showed that in 60% of cases (intervention 59%; control 63%), women's yards and surroundings were rated as well kept; while in 60% (intervention 58%; control 61%) women were rated as looking after themselves well.

4.2 Other Demographic features

Data was collected to ascertain the size of each household. The data collected was split between adults above the age of 16 and children below the age of 16. The results show that the average household size was 6.4 and that the dependency ratio[19] was 1.33. Dependency ratio is defined as the ratio between

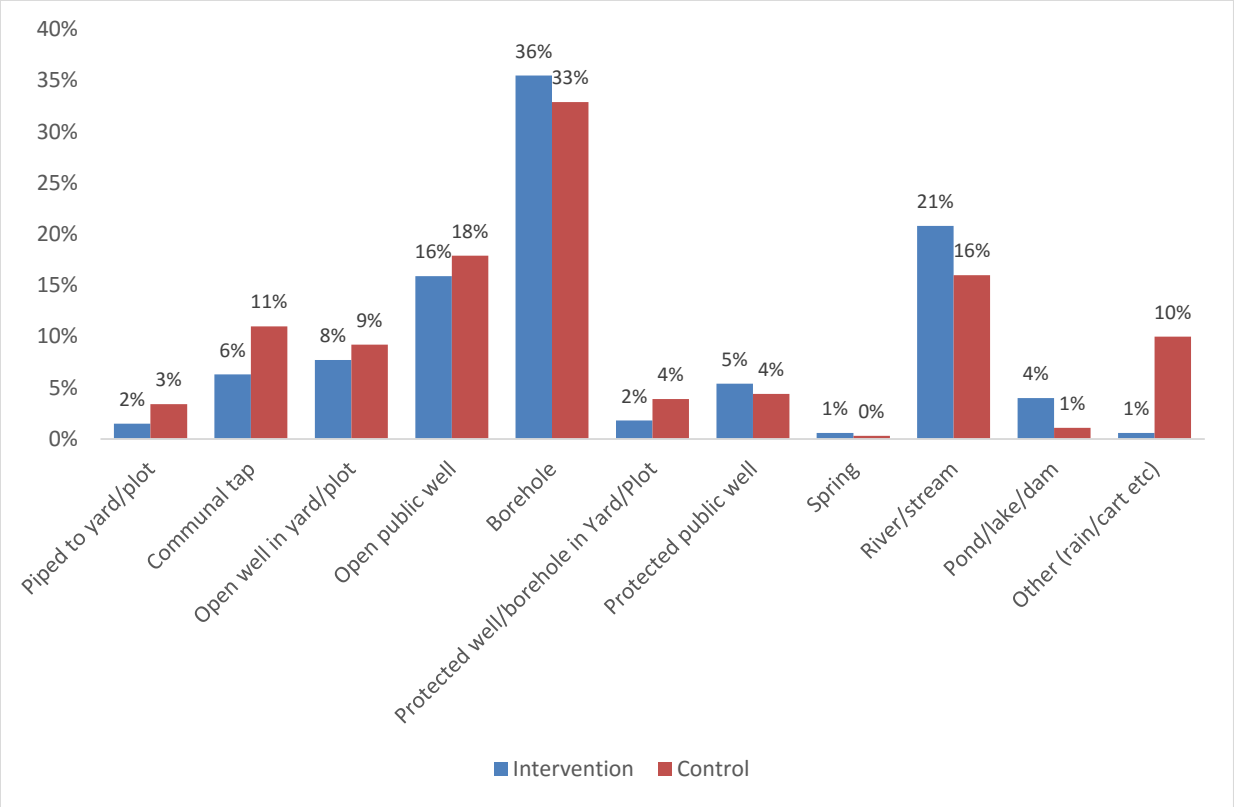
[19] A modified version of dependency ratio (children/adults) since data on the elderly was not collected. The dependency ratio recorded here is an underestimate as it excluded pensioners and adult disabled people who are counted under adults.

dependents and the economically active. Chitambo (7.7) and Mkushi (7.2) had the highest household sizes.

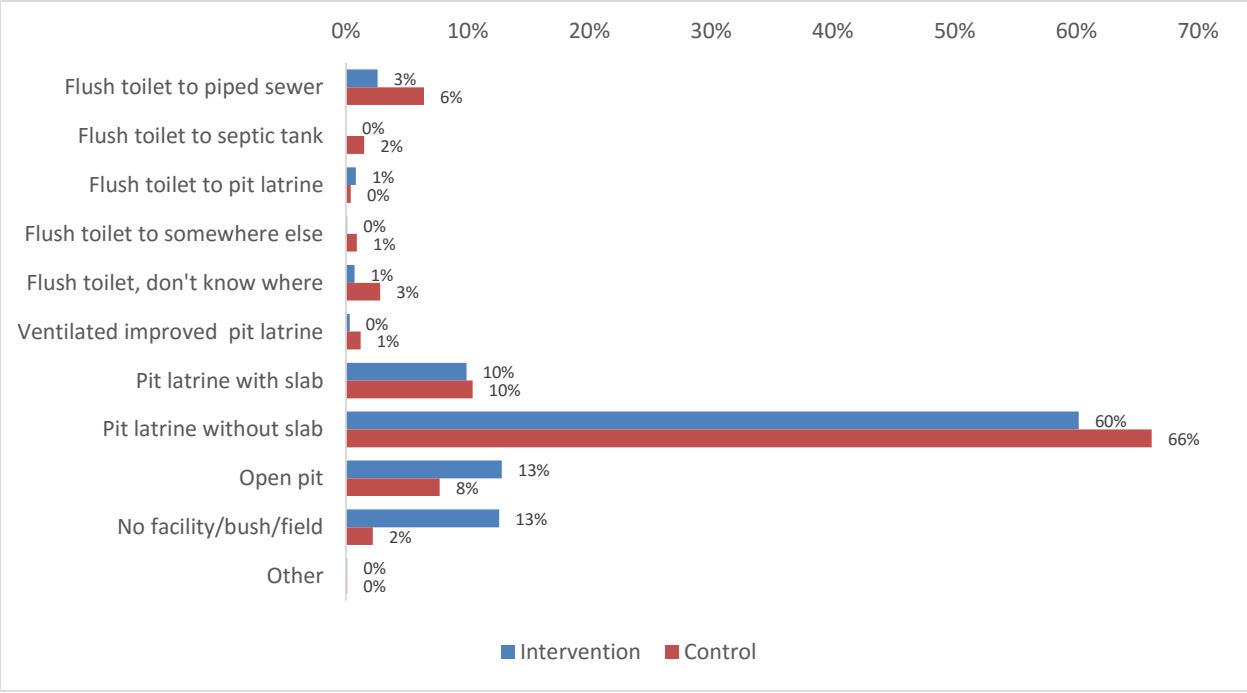
Table 7 Household size

District		Adults	Children	Total	dependency ratio
Serenje	Mean	2.3	3.6	5.9	1.53
	Median	2.0	3.0	5.0	1.50
Chitambo	Mean	2.9	4.8	7.7	1.63
	Median	2.0	4.0	6.0	2.00
Samfya	Mean	2.4	3.5	5.9	1.46
	Median	2.0	3.0	5.0	1.50
Chama	Mean	2.8	3.6	6.4	1.26
	Median	2.0	3.0	5.0	1.50
Mbala	Mean	2.7	3.6	6.3	1.36
	Median	2.0	3.5	5.5	1.75
Mkushi	Mean	3.1	4.1	7.2	1.30
	Median	2.0	4.0	6.0	2.00
Kapiri Mposhi	Mean	2.9	3.9	6.8	1.37
	Median	2.0	4.0	6.0	2.00
Mongu	Mean	2.8	3.1	5.9	1.14
	Median	2.0	3.0	5.0	1.50
Mumbwa	Mean	2.8	3.6	6.4	1.27
	Median	2.0	3.0	5.0	1.50
All districts	Mean	2.7	3.6	6.4	1.33
	Median	2.0	3.0	5.0	1.50

Data was collected on the main sources of drinking water. As expected there was little variation between intervention and control sites with regard to sources of drinking water. The main source identified was borehole (34%) while river or stream (19%) and open public well (17%) where also frequently mentioned.



Information was collected on the toilet facility used. Predominantly households use pit latrine with slab (60%) as the main type of toilet facility.



Data was collected on ownership of 35 assets[20], ranging from basic household items (furniture, radio cell phones etc) to productive (plough, boat, etc) and those depicting wealth status (car, tractor, bank accounts etc). This data was used to construct a wealth index that was used to group households into wealth quintiles.[21] The construction of the wealth ranking index closely followed the methodology used in demographic and health surveys for rural populations. The wealth index was constructed using household ownership of the items 35 items, and the table below presents the calculated wealth indices by district. On the basis of asset ownership, most of the poorest quintile households were found in Samfya, Mbala and Kapiri Mposhi while the wealthiest were found in Mumbwa, Mkushi and Kapiri Mposhi. Kapiri Mposhi has an even spread of poor and wealthy households. In general terms, MORE MAMaZ is serving underserved districts (37% of respondents in Serenje, Chitambo, Mongu fell into the two poorest quintiles and 32% in Mkushi.)

	Wealth Quintile					Total in
District	Poorest	2	3	4	wealthiest	**district**
Serenje	19%	18%	23%	24%	17%	100%
Chitambo	15%	22%	33%	20%	11%	100%
Samfya	39%	24%	14%	11%	11%	100%
Chama	15%	22%	23%	21%	20%	100%
Mbala	26%	25%	21%	16%	12%	100%
Mkushi	12%	20%	16%	24%	28%	100%
Kapiri Mposhi	20%	19%	18%	20%	24%	100%
Mongu	19%	18%	24%	21%	18%	100%
Mumbwa	8%	14%	20%	24%	34%	100%
All districts	20%	20%	20%	20%	20%	20%

All 2,350 female respondents were asked if they felt that other people respected and supported them. Most respondents (88%) felt that they had the support that they needed. Mkushi (64%) and its control

[20] The list includes: Electricity, radio, television, mobile telephone, non-mobile telephone, refrigerator, bed, chair, table, cupboard, sofa, clock An electric fan, sewing machine, cassette player, plough, grain grinder, VCR or DVD player, tractor, vehicle, hammer mill, watch, bicycle, motorcycle/scooter, An animal-drawn cart, car/truck, boat with motor, banana boat, separate room for cooking Agricultural land Poultry Other livestock Mosquito nets used while sleeping Brick and mortar house with modern roof, Bank Account.

[21] Wealth quintiles were constructed using principal component analysis (PCA) and then ranking the scores from the principal component. This method is similar to that used in DHS. The Wealth Index was constructed using the Factor Analysis (Principal Components Analysis (PCA)) procedure in SPSS on categorical variables created by assessing if a household owned the an asset (1) or did not (0). These indicators were examined using PCA to produce a common factor score for each household. The resulting combined wealth index had a normal distribution with mean 0 and variance 1. Quintiles (5x20%) were formed ranking each household by wealth score, and then dividing the ranking into five equal categories, each comprising 20 percent of the households.

district Kapiri Mposhi (83%) had the lowest number of women who felt respected and supported. Of the 12% of women who indicated that they were not supported or respected sufficiently, most (83%) felt that they did not get this from their husbands or the fathers of their babies, 11% indicated close relatives, while 18% indicated others in the community.

Table 8 Who do you feel does not support or respect you sufficiently?

	Serenje	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa	Total
Husband	81%	86%	100%	77%	80%	84%	94%	50%	83%
Close relatives	19%	29%	0%	17%	7%	9%	0%	25%	11%
Others in the community	31%	19%	0%	29%	17%	16%	6%	38%	18%

When asked if the woman had adequate support to look after herself and her children, female respondents from Mkushi (63%) and Kapiri Mposhi (54%) scored highest. Significantly more females in intervention (51%) than control districts (47%, p=0.038) reported that they had everything they needed to look after themselves and their children. Most respondents who responded to this question were referring to material support.

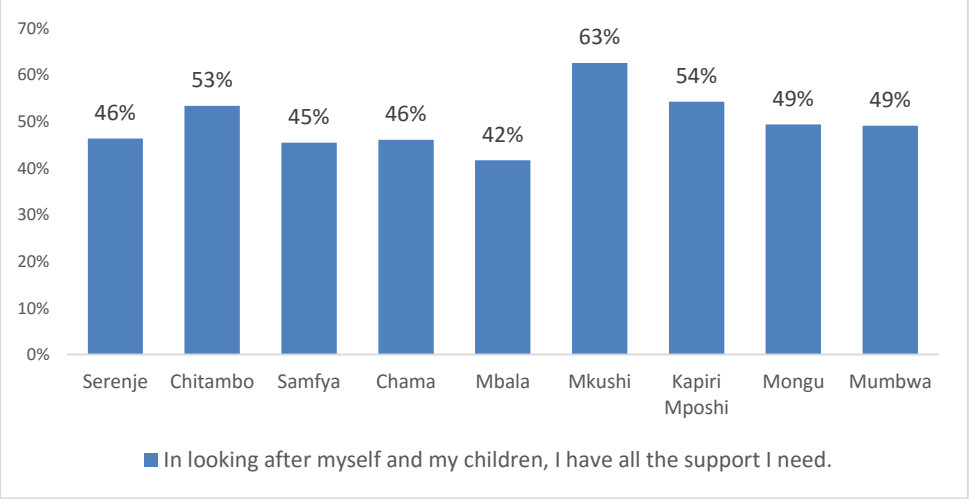


Figure 10 Women who indicated that they had all the support they needed

4.3 Knowledge and Attitudes towards Maternal health

Both female and male respondents were asked to indicate the stage at which a pregnant woman should start to go for antenatal care. The results are presented in the table below. For female respondents, a significantly greater percentage (59%) in intervention sites than in control sites (54%) correctly indicated that the first ANC visit should be in the first trimester (p=0.012). The baseline in intervention sites was

54%. Hence this result shows only a modest increase in knowledge on this issue. The data shows a high positive response from Samfya (60%). It was later established that a demand-side maternal and new-born health initiative is currently being implemented by PEPFAR in that district. Comparing opinions of male respondents, there was no significant difference between intervention (34%) and control (33%) districts in the percentage who correctly identified the first trimester as the timing for the first ANC visit.

Table 9 At what stage should a woman start to go for ANC?

Sex	Responses	Serenje	Chitambo	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa	Intervention	Control
Female	Within the first three months	57%	73%	60%	53%	46%	59%	51%	65%	59%	59%	54%
	Within the second three months	34%	23%	34%	40%	43%	32%	37%	30%	35%	34%	38%
	Within the last three months	6%	0%	4%	4%	9%	4%	6%	4%	4%	4%	6%
	Any time, stage not important	1%	0%	1%	0%	0%	0%	0%	1%	0%	0%	1%
	Other	1%	0%	0%	2%	0%	2%	1%	0%	0%	1%	0%
Male	Within the first three months	34%	31%	25%	42%	40%	27%	38%	34%	31%	34%	33%
	Within the second three months	6%	0%	2%	5%	3%	3%	7%	5%	3%	5%	4%
	Within the last three months	1%	0%	1%	0%	1%	0%	1%	0%	0%	0%	1%
	As soon as she knows she is pregnant	59%	69%	70%	47%	56%	68%	50%	61%	65%	59%	61%
	Other	0%	0%	1%	4%	0%	1%	1%	0%	0%	1%	1%

When asked about the number of times a pregnant woman should go for ANC, females and males in intervention districts both mentioned an average of 4.5 times; while their counterparts in control districts mention an average of 4.8 and 4.6 respectively. More females in intervention districts (85%) than in control (80%) indicated a number greater than 4 ($p<0.013$). There was no statistical difference between men in intervention and control districts, meaning that men were likely to say the same number of visits regardless of the type of district.

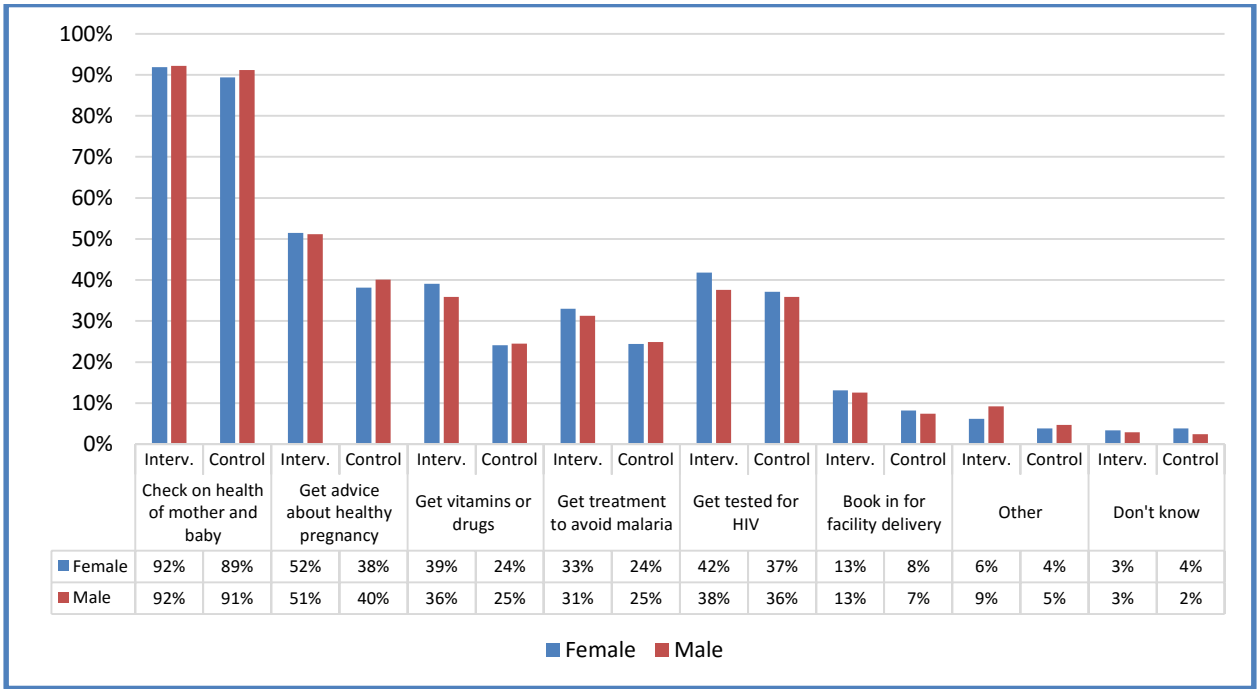


Figure 11 Reported reasons why taking up ANC is important

Almost all respondents (98%) thought that ANC was important; while 2% did not know (intervention 2%; control 2%). The graphic below shows why respondents thought ANC was important. There were statistically significant more women ($p<0.05$) in invention than in control districts who mentioned each of:

- checking on the health of the mother and baby (intervention 92%; control 89%);
- getting advice on a healthy pregnancy (intervention 52%; control 38%);
- getting vitamins (intervention 39%; control 24%);
- getting treatment to avoid malaria (intervention 33%, control 24%); and
- getting tested for HIV (intervention 42%; control 37%).

Other reasons mentioned included checking for blood pressure, checking the position of the baby and checking for STIs. These reasons were recorded under the option on checking the health of the mother and baby. There were 3% of women in intervention and 4% in control districts who indicated that they knew that ANC was important but they did not know why. This knowledge translated to more women going for ANC in the first trimester in intervention (53%) than in control districts (33%, $p<0.01$); a jump of 16% from the baseline value of 37%.

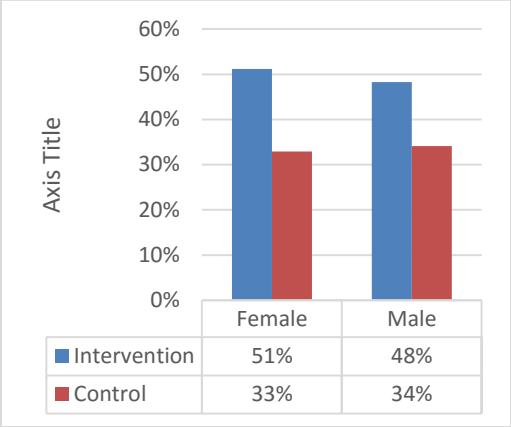


Figure 12 Percentage of men and women who reported going for four or more ANC visits with the first visit in the first trimester

Female and male respondents were assessed on their knowledge of maternal danger signs. Specifically, respondents were given the definition of a danger sign as a sign that a pregnant or newly-delivered woman was in danger and needed to be rushed to a health facility. Respondents were then asked to list all the danger signs that they knew. Significantly higher percentages ($p<0.05$) of female respondents in intervention sites mentioned a particular danger sign in all 9 danger signs assessed. This result was similar to that observed for male respondents where males from intervention districts scored higher in all the 9 danger signs assessed, with statistically significant differences in 8 out of the 9 assessed. In control districts 37% of female respondents mentioned three or more danger signs. The respective percentage was significantly higher (68%) in intervention districts. The respective figures for male respondents showed that men in intervention districts were also statistically significantly more knowledgeable (intervention 70%, control 41%; $p<0.01$).

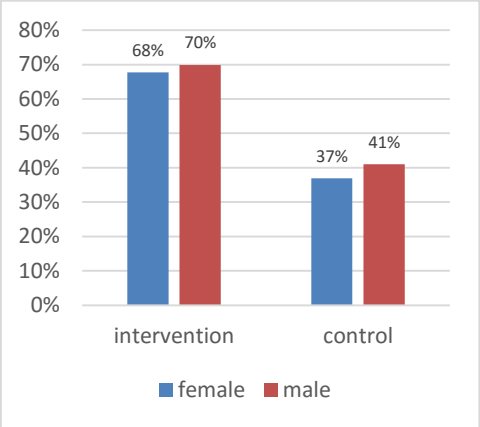


Figure 13 Percentage of respondents who knew three or more danger signs

Table 10 Percentage of respondents who knew three or more danger signs

Sex	Serenje	Chitambo	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa
Female	58%	57%	41%	81%	32%	58%	42%	72%	33%
Male	58%	75%	41%	88%	32%	68%	51%	66%	41%

The baseline situation in intervention districts was 43% for both men and women, indicating that knowledge had increased between baseline and endline by 25% for women and 27% for men.

Table 11 Maternal danger signs mentioned

	Female			Male		
District Type	Intervention	Control	Diff.	Intervention	Control	Diff.
Severe bleeding from the vagina (before/after birth)	65%	53%	12%	69%	64%	5%
Fitting	48%	13%	35%	50%	15%	35%
Swollen hands or feet	59%	28%	31%	63%	33%	30%
Severe headache	56%	32%	24%	54%	38%	16%
Fever	47%	29%	18%	47%	35%	12%
Foul smelling discharge	38%	16%	22%	34%	14%	20%
Prolonged labour of 12 hours or more	30%	9%	21%	22%	10%	12%
Placenta did not follow the baby in 30 minutes	27%	7%	20%	19%	7%	12%
Part of the baby other than head comes first	32%	7%	25%	19%	7%	12%
Other	11%	15%	-4%	11%	13%	-2%

Respondents were asked to give the source of their knowledge on maternal danger signs. In intervention districts, among females, the predominant source was SMAGs (78%), ANC health talk (34%), and health workers during a clinic visit (22%). This contrasted with females in control districts whose main sources were ANC health talks (59%), health worker during a clinic visit (28%) and spouse (15%). The patterns observed for male respondents were largely similar (see table below). The results show a more diverse source of reliable information in intervention districts than in control districts. The higher level of knowledge of individual maternal danger signs in the intervention districts shows the value-added of the SMAGs at community level.

All respondents were asked to list as many things as they thought a pregnant woman should do to prepare for a possible maternal emergency. They were also asked to list all the things that they thought a husband of a pregnant woman should do similarly. The results are presented in the table below. Larger percentages of females in intervention districts mentioned a range of actions, including saving money and food (intervention 76%, control 49%); plans for emergency transport (intervention 43%; control 26%) and knowing maternal danger signs (intervention 36%, control 16%). When compared to what the husband of the pregnant woman should do, the patterns were largely similar, with many more female respondents feeling that the husband ought to save money (intervention 81%, control 68%) and have a plan for emergency transport (intervention 45%, control 42%). The respective baseline values in intervention

districts were 79% (saving money) and 28% (having a transport plan). These figures were lover than baseline values as the spread of items increased following MORE MAMaZ interventions. In intervention districts, the number of items mentioned was 2.5 times more than those mentioned by women in control districts (p<0.01).

Table 12 Source of knowledge on maternal danger signs

	Female			Male		
Source of knowledge	**Intervention**	**Control**	**Diff.**	**Intervention**	**Control**	**Diff.**
A community volunteer or SMAG	78%	13%	65%	78%	13%	65%
Community discussion group session	14%	5%	9%	12%	5%	7%
A health worker visited their home	8%	6%	2%	7%	4%	3%
A health worker during a clinic visit	22%	28%	-6%	27%	32%	-5%
Social gathering	8%	7%	1%	6%	11%	-5%
Spouse	10%	15%	-5%	6%	9%	-3%
Relatives	6%	11%	-5%	7%	13%	-6%
Friends	7%	13%	-6%	7%	10%	-3%
ANC/Health talk	34%	59%	-25%	43%	61%	-18%
Radio or television	4%	9%	-5%	2%	5%	-3%
Other	4%	9%	-5%	5%	5%	0%

Additional analysis showed that with regards to what respondents thought a pregnant woman should do to prepare for a maternal emergency, significantly more female respondents (43%) in intervention districts mentioned three or more actions compared to 18% in control districts (p<0.01). Respective figures for male respondents were 42% intervention districts and 19% in control districts (p<0.01). In terms of what respondents thought the husband of a pregnant woman should do, 33% of female respondents in intervention districts mentioned at least three items compared to 14% who did the same in control districts (p<0.010); and 32% of male respondents in intervention districts mentioned three or more items compared to a significantly less 15% of male respondents in control districts (p<0.01). The results also show on average, female and male respondents in intervention districts mentioned twice as many items that a pregnant woman or the husband should do to prepare for a possible emergency than control sites.

When asked if they had discussed emergency maternal care with anyone during the last pregnancy, 67% of females and 70% of males in intervention districts had discussed with at least one person, and this was higher than what was observed in control districts (female 47%, male 52% p<0.01 for both). In terms of who respondents were talking to, in intervention sites, most females were talking to the spouse (50%), and in a community discussion group (46%); and in control districts, it was predominantly the spouse (62%) and relatives (44%). Females in intervention sites had a wider range of people with whom they were discussing maternal emergencies (see figure below).

Table 13 Things that a pregnant woman and her husband needs to do to prepare for a possible maternal emergency

	Things that a pregnant woman needs to do to prepare for a possible maternal emergency				Things the husband of a pregnant woman needs to do to prepare for a possible maternal emergency			
	Female		Male		Female		Male	
	Interv.	Control	Interv.	Control	Interv.	Control	Interv.	Control
Know the maternal danger signs	36%	16%	32%	17%	31%	14%	26%	16%
Save money and food for emergency maternal care	76%	49%	78%	55%	81%	68%	81%	74%
Ensure that her family knows how to access community emergency savings schemes	19%	5%	17%	5%	14%	5%	14%	6%
Have a mother's helper	31%	14%	27%	15%	18%	9%	17%	9%
Obtain standing permission to go to the health facility	13%	8%	12%	10%	15%	7%	12%	8%
Have a plan for accessing emergency transport	43%	26%	40%	27%	49%	40%	45%	42%
Nothing	4%	3%	5%	4%	2%	3%	5%	2%
Other	30%	41%	33%	43%	16%	18%	20%	18%

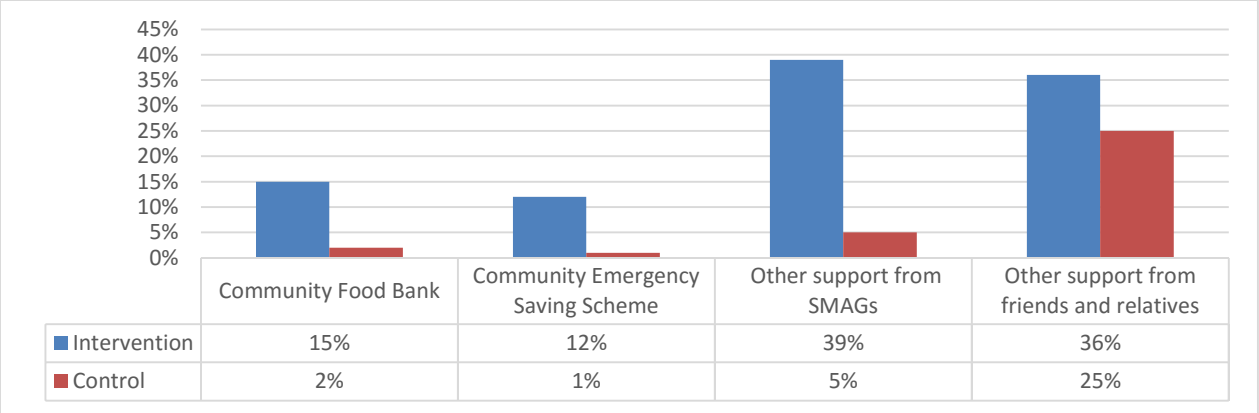
SMAG activities were assessed by asking respondents how many times a SMAG had visited them in their homes in the last year to talk about maternal health issues. On average, female respondents in intervention districts reported that SMAGs had visited them 1.8 times, with most visits reported in Mongu (2.1), Chitambo (1.83) and Chama (1.79). Female respondents were women who had delivered within the last six months. This finding reflects the way in which SMAGs have targeted pregnant and newly delivered women in door-to-door visits. The data in the same table also highlight that men have benefitted from home visits by SMAGs, with 3.44 male respondents reporting visits in Chitambo and 2.2 visits in Mongu. Visits by SMAGs were negligible in control districts. Apart from visits by SMAGs, community discussion group sessions were reported in all intervention districts. On average, respondents had attended 2.7 discussion group sessions in the past year, most occurring in Chama (4.3) and the least in Serenje (1.7). No discussion sessions were recorded in control sites.

Table 14: SMAG visits and participation in community discussions

		How many times has a SMAG visited you in your home to discuss maternal health issues?		How many times have you attended community discussion group sessions in the last year?	
District Type	District	Female	Male	Female	Male
Intervention	Serenje	1.57	1.91	1.65	1.98
	Chitambo	1.83	3.44	2.17	3
	Chama	1.79	1.68	4.28	3.72
	Mkushi	1.37	1.4	1.69	1.77
	Mongu	2.11	2.2	2.91	2.82
	Total	1.75	1.86	2.68	2.6
Control	Samfya	0.84	0.58	0	0
	Mbala	0.14	0.08	0	0
	Kapiri Mposhi	0.02	0	0	0
	Mumbwa	0	0.01	0	0
	Total	0.26	0.19	0	0

The work of SMAGs is meant to build the confidence of women to take the necessary action to achieve a safe pregnancy. All female respondents were asked if they felt able to achieve a safe pregnancy. In intervention districts, 85% felt they were, and this was 28% higher than in control sites with 57% ($p<0.010$). Additionally, 77% of females in intervention sites felt that the work of SMAGs helped them to feel more confident.

Female respondents were asked if they had received support from community food banks, ETS, SMAGs and other friends and relatives. Women in intervention districts reported a diverse source of support including from friends and relatives (36%), SMAGs (39%), ETS (12%) and community food banks (15%). Women in intervention districts received significantly more support from friends and relatives (36%) than those in control districts (25%, $p<0.01$). These results indicate that there is a high level of reliance on the SMAGs for support in intervention communities. It is worth noting in the intervention districts that community systems were established as a safety net, and not all pregnant women are expected to use them. A key question is whether the women who wish to use these systems can actually do so. This is unfortunately not a question that the endline survey can answer, but questions to this end should be included in future similar surveys.

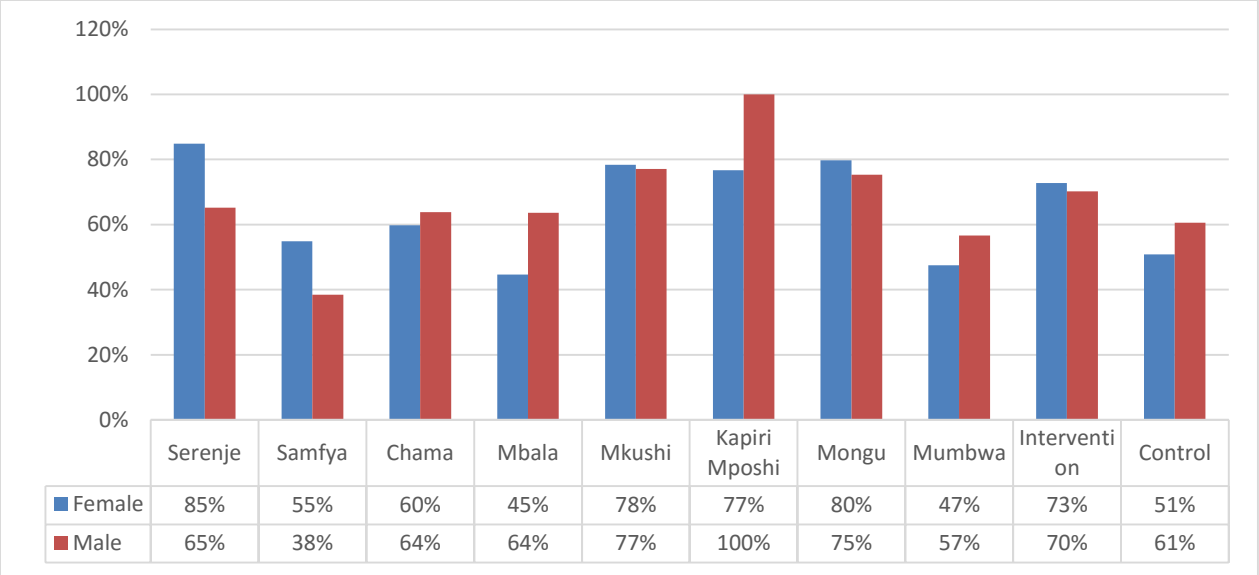


	Community Food Bank	Community Emergency Saving Scheme	Other support from SMAGs	Other support from friends and relatives
Intervention	15%	12%	39%	36%
Control	2%	1%	5%	25%

Figure 14 Percentage of women supported by community systems

4.4 Social inclusion

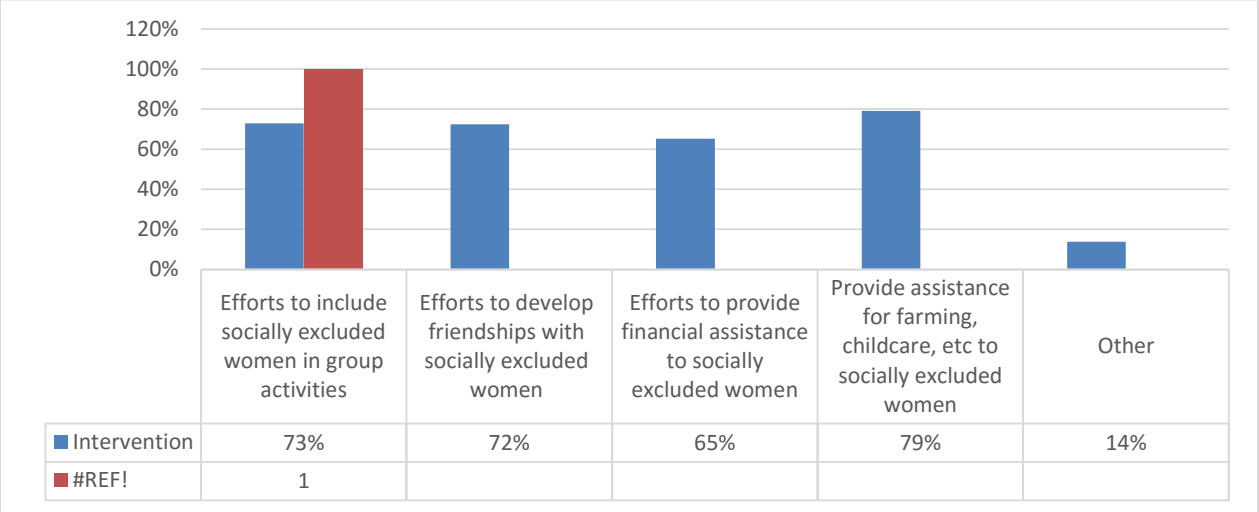
The survey tool collected data on social inclusion. Respondents were asked if they were aware of any efforts that were being made in their community to include under-supported or socially excluded women in health and other activities. The results show that both females and males in intervention districts were more aware of such initiatives (females 71% males 70% in intervention, compared to 51% and 61% respectively in control districts.) These differences were both statistically significant ($p<0.01$ in both cases).



	Serenje	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa	Intervention	Control
Female	85%	55%	60%	45%	78%	77%	80%	47%	73%	51%
Male	65%	38%	64%	64%	77%	100%	75%	57%	70%	61%

Figure 15: Percentage of respondents who were aware of any efforts that were being made in their community to include under-supported or socially excluded women in health and other activities.

From the respondents, efforts were being made in providing assistance for farming and childcare in most districts, while inclusion in group activities (73%), development of friendships (72%) and provision of financial assistance (65%) were more pronounced in intervention districts only (see figure below).



	Efforts to include socially excluded women in group activities	Efforts to develop friendships with socially excluded women	Efforts to provide financial assistance to socially excluded women	Provide assistance for farming, childcare, etc to socially excluded women	Other
Intervention	73%	72%	65%	79%	14%
#REF!	1				

Figure 16: Reported efforts that were being made to include under-supported or socially excluded women

Other data show the extent of efforts made in MORE MAMaZ districts to address inequities and social exclusion. Data collected on fines payable for delivering babies at home was correlated with wealth ranking. These fines may be levied at the health facility, or by traditional leaders. In neither case was fining endorsed by the programme. The analysis compared the poorest and wealthiest quintiles, that is, the least likely and the most likely to be socially included. The results show that in intervention sites, 17% of the poorest quintile reported paying a fine for delivering at home, while 0% of the wealthiest quintile did not

(also could afford not to deliver at home). In sharp contrast, as many as 40% of the poorest quintile and 16% in the wealthiest quintile in control districts reported that delivering at home attracted a fine. This result shows more favourable inclusion efforts in intervention districts. Social exclusion, however, is not only based on wealth as other factors such as lack of social support can happen across wealth quintiles, and are also important.

Table 15:% receiving support from SMAGS

Wealth ranking	Intervention	Control
poorest	39.30%	1.30%
2	39.30%	1.30%
3	40.90%	3.00%
4	36.40%	2.30%
wealthiest	34.20%	3.30%

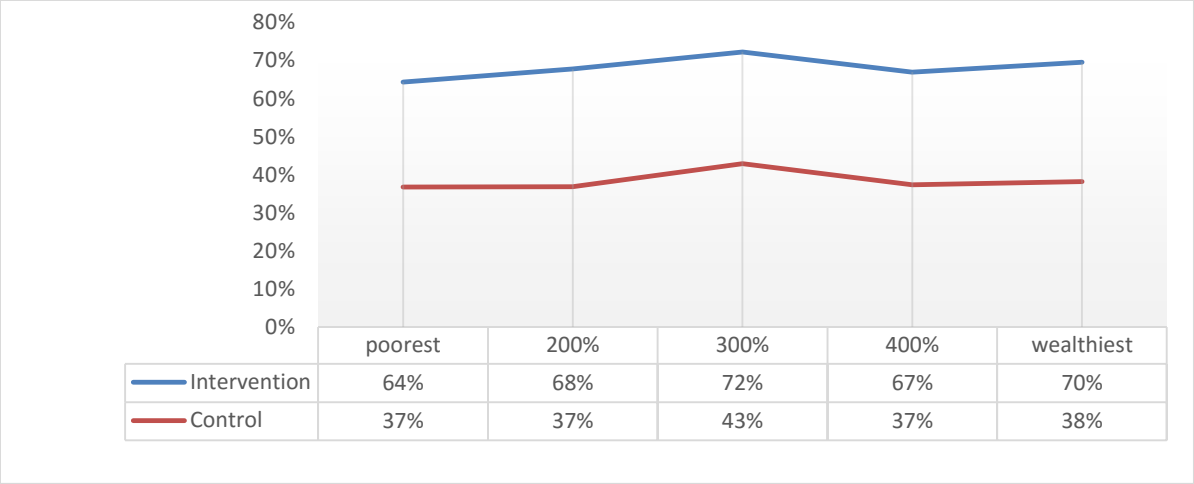
Although the work of SMAGs is guided by Ministry of Health policy, the number of active SMAGs in control districts was much lower than in intervention districts, and the support received from these volunteers was thus more evident in intervention districts. Table 15 shows the percentage of women who reported that they received support from SMAGs. The difference between the wealthiest (34%) and poorest (39%) quintile is small (5% p=0.053) and positive, showing two important findings: that SMAGS seemed to support all women regardless of wealth status, and that the skew was leaning towards poorest women.

Wealth ranking was cross-tabulated with the observed condition of a respondent's home and the land around it. It was important to establish whether social factors such as being under-supported or not feeling respected play a role alongside economic status. Comparing the poorest and wealthiest quintiles shows an increase in tidiness with increases in wealth, with biggest differences recorded in the control districts.

Table 16: Correlation between wealth and tidiness.

What condition is the home and the land around it?		Wealth Quintile					Total
		poorest	2	3	4	wealthiest	
Intervention	It is well kept and tidy	49%	58%	57%	65%	65%	59%
	It is not well kept	48%	41%	41%	30%	32%	38%
	Not observed	3%	2%	2%	4%	3%	3%
	Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Control	It is well kept and tidy	44%	70%	62%	59%	74%	63%
	It is not well kept	49%	28%	36%	35%	25%	34%
	Not observed	6%	2%	2%	6%	1%	3%
	Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

An attempt was made to assess knowledge and attitudes by wealth ranking. Knowledge levels (measured by the percentage of respondents who knew three or more maternal danger signs) were generally higher in intervention districts (68%) than in control districts (38% p<0.01). A weak (r^2= 0.24) and insignificant (p= 0.291) correlation between knowledge and wealth (richest and poorest quintiles) was observed in intervention districts. The respective statistics were r^2= 0.11 and p = 0.635 in control districts, indicating a weaker and insignificant correlation. The results show that knowledge levels were higher in interventions sites, and were not influenced by wealth status. The MORE MAMaZ programme therefore reached all women regardless of wealth status.



	poorest	200%	300%	400%	wealthiest
Intervention	64%	68%	72%	67%	70%
Control	37%	37%	43%	37%	38%

Figure 17: % mentioning 3 or more maternal danger signs

A strong correlation existed between the number of discussion sessions attended and the percentage of women who knew 3 or more danger signs (r^2=51%). Without attending any discussion session, the resultant regression shows that 27% of women should know 3 or more danger signs, and that the figure should rise to 90% after 10 sessions (2 cycles). This result seems to suggest that a minimum of 5 sessions are required to ensure that 80% of respondents know 3 or more danger signs. These results were consistent when treating female or male data separately.

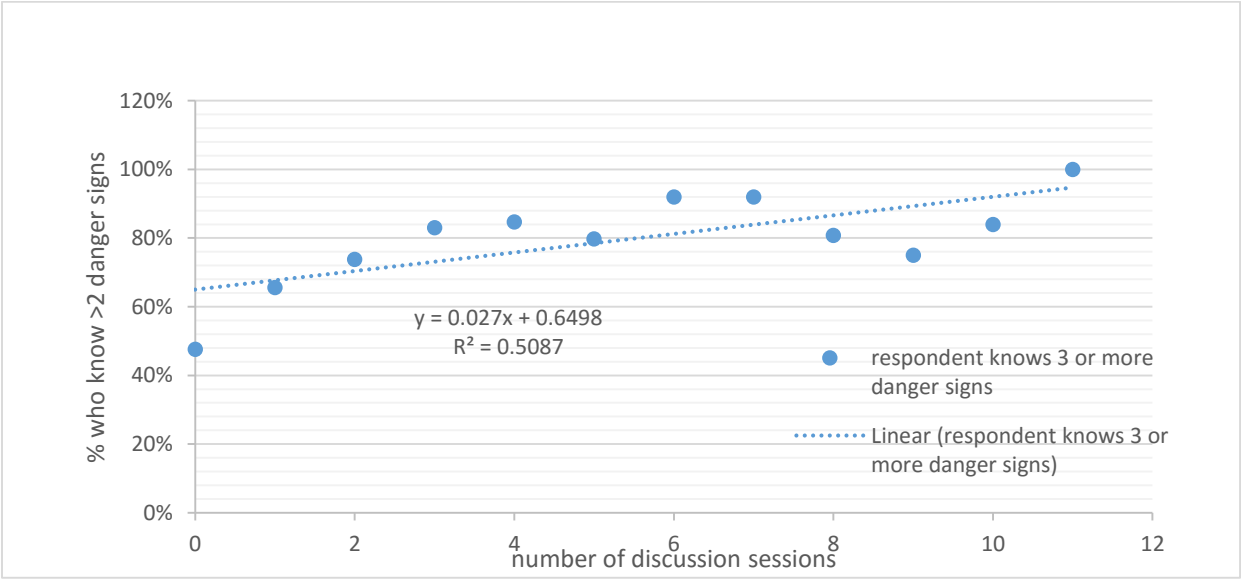


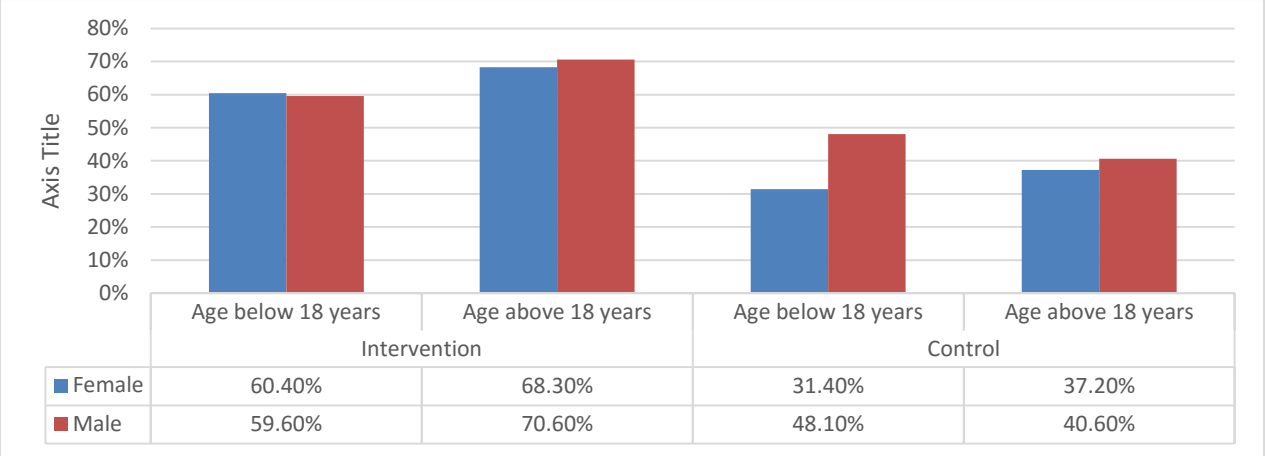
Figure 18:A regression of the number of discussion cycles and the percentage of women knowing three or more danger signs.

Insights into age-knowledge relationships (see graph below) show a number of things:

- Adults in intervention districts, especially men, are slightly more knowledgeable of maternal danger signs than youths (11% higher, p=0.219); while the opposite is observed in control districts.

(higher literacy among men (and possibly greater mobility) give them more exposure and make them better able to grasp teachings). This suggests that younger age groups may not be benefitting from the interventions quite as much as adults aged above 18 years.

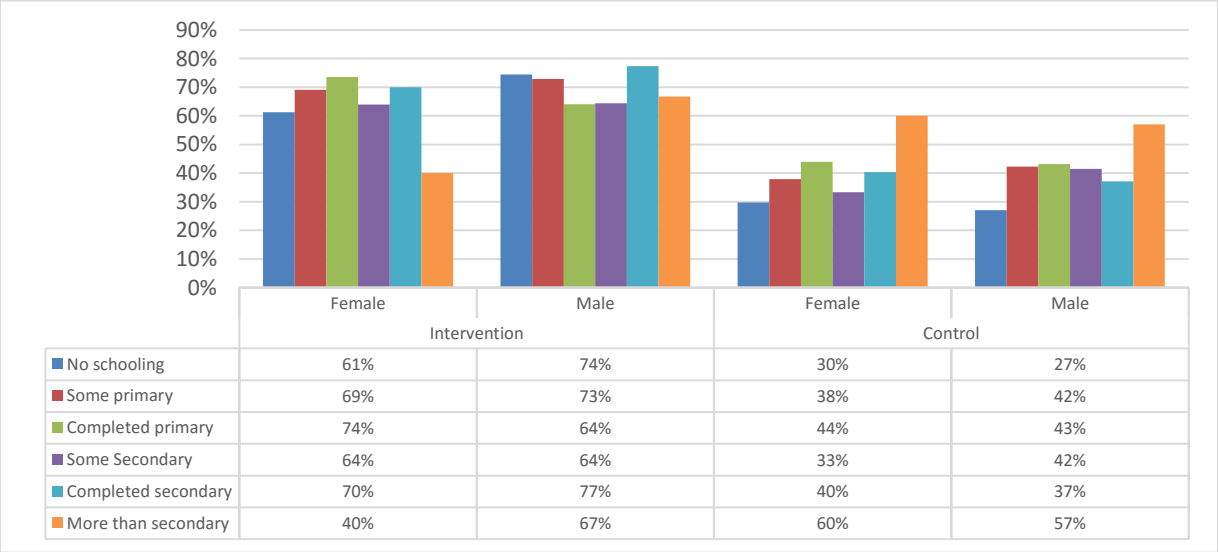
- Variation in knowledge levels between older and younger age cohorts is highest in intervention districts, although knowledge is higher all round in these sites.
- There are similarities between knowledge levels of men and women of the same age in intervention districts (levelling effect)



	Intervention		Control	
Female	60.40%	68.30%	31.40%	37.20%
Male	59.60%	70.60%	48.10%	40.60%

Figure 19: Relationship between knowledge of maternal danger signs and age.

When analysed by education, the results for knowledge of maternal danger signs show bigger gains in less literate female (baseline position = 51%) and male respondents (baseline position = 19%) in intervention districts than in control districts (baseline position for females = 43%, and males 34%). Knowledge has a stronger relationship with education in control districts. Again, this indicates that the programme's interventions have had a levelling effect.



	Intervention		Control	
No schooling	61%	74%	30%	27%
Some primary	69%	73%	38%	42%
Completed primary	74%	64%	44%	43%
Some Secondary	64%	64%	33%	42%
Completed secondary	70%	77%	40%	37%
More than secondary	40%	67%	60%	57%

Figure 20:Relationship between education and knowledge of maternal danger signs

4.5 Perceptions on social norms relating to maternal health

This section presents the results on social norms relating to maternal health. Both female and male respondents in intervention and control areas were asked the same questions. The first two questions sought to assess respondents' perceptions on social norms with regards to preparations for maternal emergencies, knowing new-born danger signs and testing and counselling for HIV. The results are presented in the table below. Respondents, both female and male in all districts generally felt that husbands, friends, relatives, other women, and men in the community should prepare for a possible maternal emergency (>70%). Significantly fewer respondents (<55%) believed that traditional leaders felt community members should prepare. The same patterns of responses were observed with regards to perceptions on knowing new-born danger signs and HIV counselling and testing. The results seem to indicate that traditional leaders are perceived to have shifted their attitudes on maternal preparedness to a lesser extent than other members of the community.

Female respondents in the intervention sites were more likely than females in control sites to believe that their relatives, friends, and most women and men in the community felt that a husband should prepare for a possible maternal emergency. MORE MAMaZ placed considerable emphasis on changing social norms across entire communities and hence this result is not unexpected. The results relating to HIV testing at ANC, which are similar in intervention and control districts, reflect the fact that the importance of HIV testing is now widely known in rural Zambia.

Table 17 Beliefs on preparing for a possible maternal emergency

		Female		Male	
		Intervention	Control	Intervention	Control
Do you think any of the following people believe that the husband of a pregnant woman should prepare for a possible maternal emergency	Your husband?	94%	91%	95%	91%
	Most of your friends?	88%	81%	89%	85%
	Most of your relatives?	90%	83%	91%	85%
	Most women in the community?	84%	78%	86%	82%
	Most men in the community?	77%	72%	79%	76%
	Traditional leaders	52%	46%	53%	55%
Do you think any of the following people believe that going for voluntary counselling and testing for HIV at ANC is important for the woman's and baby's health?	Your husband?	95%	94%	95%	94%
	Most of your friends?	90%	86%	90%	88%
	Most of your relatives?	90%	89%	92%	90%
	Most women in the community?	86%	85%	86%	88%
	Most men in the community?	81%	80%	82%	83%
	Traditional leaders	53%	52%	56%	59%

All respondents were asked to provide an opinion on whether wife beating was on the decline in their communities over the past couple of years. A significantly higher number of females reported decreases in intervention compared to control areas (intervention 88%, control 76% p<0.010). This pattern was also observed for male respondents (intervention 89% control 72% p<0.010). Control sites Mbala (68%) and

Mumbwa (73%) had the lowest number of female respondents that indicated that wife beating was on the decrease. Chitambo (93%) and Mongu (90%) had the highest. In intervention districts, the decline was largely attributed to the work of the SMAGs (79%) and counselling support provided by health workers (57%). In control districts, the changes were perceived to have been caused by counselling support from health providers (60%) and the police (60%). It seems that the work of the SMAGs is influencing the bigger positive change that is observed in intervention districts.

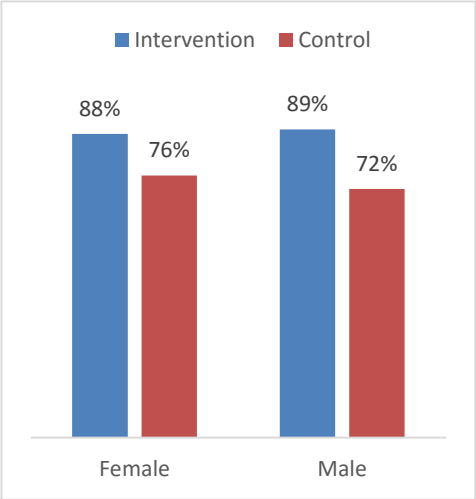


Figure 21 Percentage indicating that wife beating has declined

Table 18 Causes for declines in wife beating

	Female		Male	
	Intervention	Control	Intervention	Control
The awareness raising work of the SMAG volunteers	79%	23%	79%	24%
Government policy	53%	59%	56%	60%
Support of traditional leaders	49%	52%	50%	53%
The support of the police	46%	60%	46%	62%
The actions taken by vigilante groups	40%	44%	43%	48%
Counselling and support offered by health providers	56%	60%	58%	61%

A question was asked to assess health worker attitudes. Both female and male respondents were asked to indicate if they felt that health workers were communicating better. 92% of all respondents in intervention sites indicated that communication was better, while 88% in control districts also agreed ($p=0.046$). However, 18% of females in intervention and 14% in control districts also went on to report that they had opted not to use a health facility because of the negative attitudes of health personnel ($p<0.012$). The respective percentages for male respondents were 20% in intervention districts and 13% in control districts ($p<0.011$). The largest percentage of women reporting that they had opted not to use a health facility were from Mkushi (33%) followed by Kapiri Mposhi 18%. This indicates that health provider attitudes remain a significant barrier to uptake of essential maternal and other health services, and urgently need to be addressed.

It was already established that wife beating was reported to be on the decline, with 12% of women disagreeing in intervention districts, compared to 24% in control districts ($p<0.01$). Of these women who did not think that wife beating was declining, their distribution was not correlated with wealth ($p=0.104$ in intervention, $p=0.872$ in control). However, there were significant differences when correlated with education. While there was no significant correlation with education in control districts, in intervention sites, women with little or no education seemed to be the ones reporting that wife beating had not decreased.

Table 19 Percentage who have opted not to use health facility because of negative attitudes

Serenje	Chitambo	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa	Total
12%	7%	14%	16%	12%	33%	18%	17%	11%	16%

Table 20: The relationship between wife beating and education

	Education level	Intervention	Control
% who disagree that wife beating has decreased	No schooling	14%	25%
	Some primary	14%	26%
	Completed Primary	12%	21%
	Some Secondary	11%	22%
	Completed secondary	8%	21%
	More than secondary	0%	40%

The study set out to explore whether two sets of indicators – the way in which women look after their home environment and themselves, and their perceptions of being supported and respected – were related to changes in knowledge, attitudes and practices. The hypothesis is that both sets of indicators are proxies for social exclusion, and may have greater (or perhaps additional) explanatory value for differences in knowledge, attitudes and practices than poverty status or education. The hypothesis is based on work in Nigeria that suggested that where rural communities are largely homogeneous (i.e. wealth and educational differences are not substantial) other factors, including substantively social factors, necessarily explain the sometimes quite substantial differences in health access and outcomes.

Hence in the MORE MAMaZ survey a correlation between perceived levels of support and respect and GBV (i.e. perceptions that it has decreased) was conducted. In intervention sites, women who indicated that they felt under-supported and not respected were more than twice as likely to disagree with the notion that wife beating was on the decline (10% vs 27%, $p<0.01$). This pattern was also observed in control districts (21% vs 47%, $p< 0.01$). The gap was wider in control districts in real terms, showing that nearly half of all women who thought wife beating was not decreasing fell into the least-supported category.

We also explored the relationship between the state of the home environment and women's appearance and their perception that GBV has decreased. In intervention districts, 13% of women who had tidy home environments indicated that wife beating was not declining, and this compared to 14% who also disagreed and had home environments deemed to be untidy ($p=0.111$); indicating that wife beating was not correlated with condition of the home environment. The respective results in control districts (23% vs 29%) seemed to agree with the observations in intervention districts ($p=0.027$). However, the differences in the control districts were significant, showing a relationship there. The correlation between the woman's appracnce and their perception that GBV has decreased yielded similar results.

4.6 Antenatal care practice

Questions were asked to assess uptake of antenatal care. Almost all women reached in this survey (97%) reported that they had attended ANC during the last pregnancy (intervention 98%, control 96%, p=0.013). These results were consistent with what was reported by male respondents (intervention 98%, control 95%, p=0.012). This is also consistent with the 2014 Demographic and Health Survey (DHS). The percentages of both females and males reporting that husbands of pregnant women accompanied their wives for ANC at least once were similar (males in intervention districts 87%, males in control districts 86%, p=0.43). The results show that the patterns observed of men accompanying their wives for ANC were similar in both intervention and control districts.

ANC was received predominantly at a government health facility (intervention 96%, control 96%). Very few women (3%) received ANC during an outreach visit and at home (<1%) in intervention districts. On average, females in intervention districts went for their first ANC visit at 3.4 months while those in control districts went at 3.8 months (p=0.26). A closer scrutiny of the data shows that 62% of women in intervention districts went for the first ANC visit in the first trimester, compared to 43% in control districts (p= <0.010). The figure below shows the lag in taking up ANC in control districts.

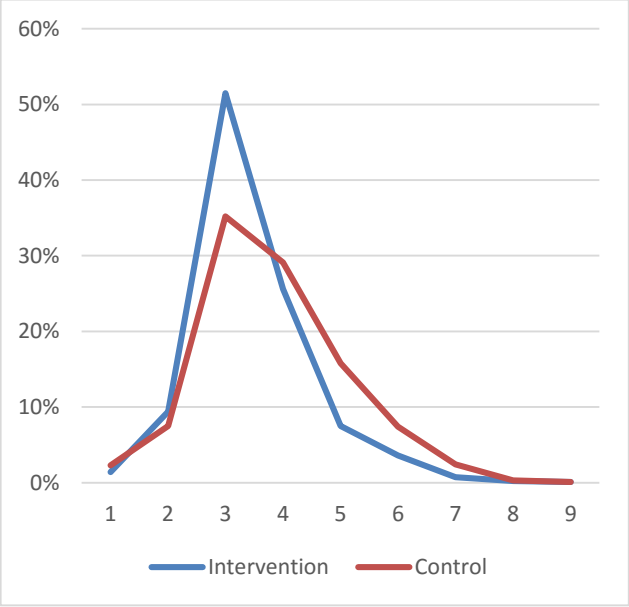


Figure 22 Month of first ANC visit

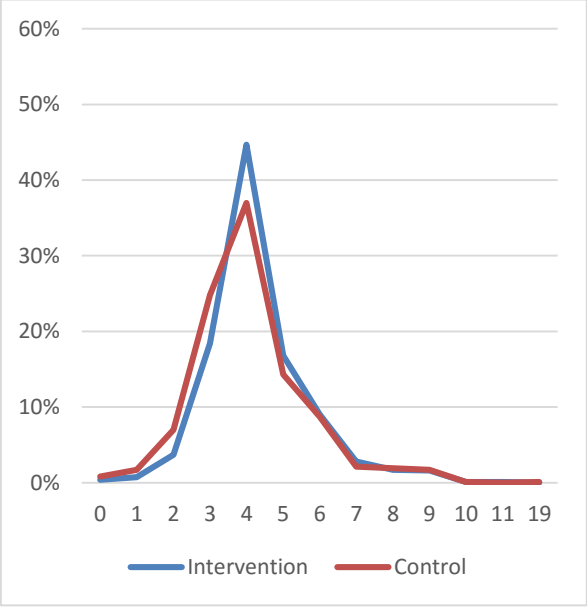


Figure 23: How many times did you receive antenatal care during last pregnancy?

On average, women in intervention districts went for 4.3 ANC visits while in control districts, the average number of visits was 4.13 (p=0.145). Thus on average, women in both intervention and control districts were making more than 4 visits for ANC. In particular, 77% of women in intervention districts had 4 or more ANC visits, compared to 66% in the control districts (p<0.01).

Emergency Transport Schemes were used for ANC in all intervention districts, mostly by women in Mongu (36%) and Chama (33%) where distances to the health facility are considerable. This is a local adaptation since these schemes were originally established in the intervention sites to support the transfer of women to health facilities for delivery. Formal community based ETS services were not available in all 4 control districts, although a facility based service was available for some communities in Samfya.

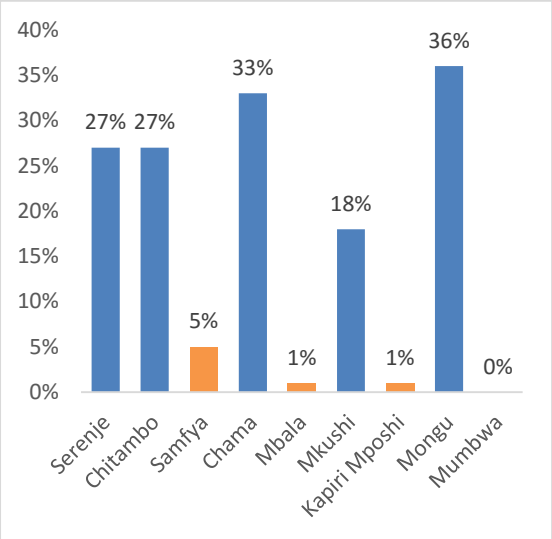


Figure 24 Percentage of women who used ETS for ANC visits (control districts in orange).

The analysis sought to establish the extent to which MORE MAMaZ interventions encouraged more men to attend ANC in the first trimester. The results from the endline survey show that in intervention districts, 62% of men reported that they attended ANC in the first trimester, compared to 47% who did so in control districts ($p<0.01$). This suggests that MORE MAMaZ's emphasis on male involvement works. The data further shows that there were insignificant differences between women (63%) and men (62%) attending ANC in the first trimester in intervention sites, much higher than in control districts: women (43%) and men (47%). This result shows that MORE MAMaZ succeeded in encouraging at least 19% more women and 15% more men to take up ANC early. In both intervention (95%) and control (94%) sites almost all men and women who went for ANC were offered HIV counselling and testing. This shows that a primarily MNH-focused initiative leveraged improvements in broader reproductive and sexual health service uptake.

4.7 Delivery and new born care

The ultimate intention for MORE MAMaZ is to adequately support women to deliver in health facilities with skilled birth attendants. In this survey, female and male respondents were asked about delivery practices observed for their last baby. When asked who had delivered the baby, both female and male respondents in intervention sites gave consistent responses where nurses or midwives (59%); doctors (11%); and traditional birth attendants (TBAs) (11%) delivered most of the babies (see Table 21 below). In control sites, significantly more TBAs, relatives and other non-skilled birth attendants delivered babies. Specifically, from the analysis of both female and male responses, significantly more babies were delivered with SBAs in intervention districts (78%) than in control districts (68%, $p<0.010$). The baseline situation in the intervention sites was 46%, and hence a 32% increase occurred over the timeframe of MORE MAMaZ. This result also suggests that the demand-side work of the MORE MAMaZ programme has helped to leverage a supply-side response in the form of additional SBAs in intervention facilities.

Table 21 Who assisted with the delivery of your last child?

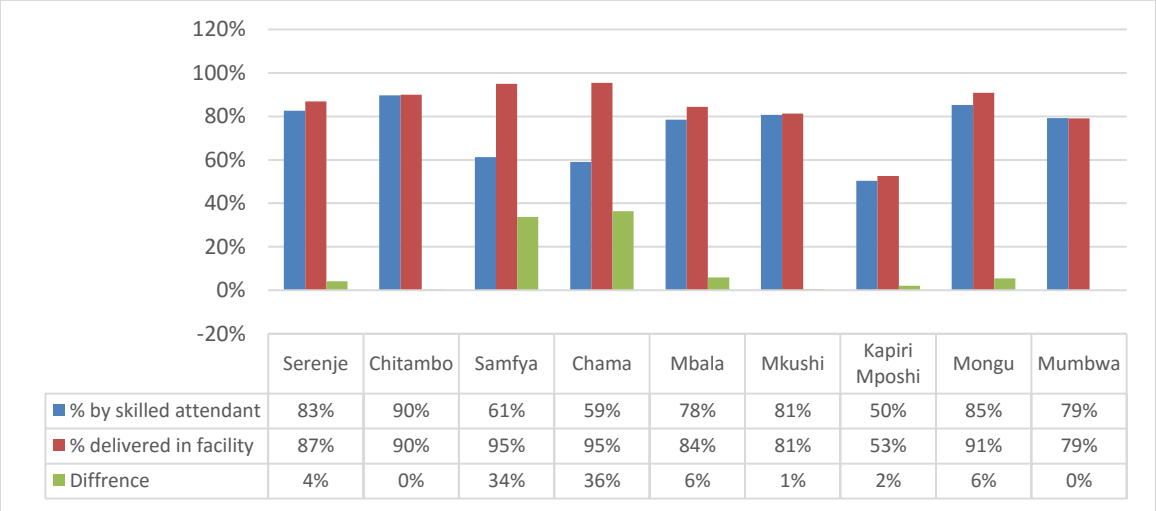
Sex	District Type

		Intervention	Control	Total
Female	Doctor	13%	9%	11%
	Clinical Officer	6%	4%	5%
	Nurse/midwife	59%	55%	57%
	Traditional Birth Attendant	11%	20%	15%
	Relative/Friend/SMAG	7%	9%	8%
	Other (EHT, CHA, cleaner etc.)	2%	1%	1%
	No one, Alone	1%	2%	1%
	Don't Know	1%	2%	1%
	Total	100%	100%	100%
% SBA		*78%*	*68%*	*74%*
Male	Doctor	10%	7%	9%
	Clinical Officer	5%	3%	4%
	Nurse/midwife	63%	57%	60%
	Traditional Birth Attendant	11%	23%	17%
	Relative/Friend/SMAG	7%	8%	7%
	Other (EHT, CHA, cleaner etc.)	2%	1%	1%
	No one, Alone	1%	0%	1%
	Don't Know	1%	1%	1%
	Total	100%	100%	100%

The percentages of SBA deliveries were highest in Chitambo (90%), Mongu (85%) and Serenje (83%) and lowest in Kapiri Mposhi (50%), Chama (69%) and Samfya (61%).

Most births were normal vaginal deliveries (intervention 98%, control 96% p=0.46); with 3% being C-sections (intervention 2%, control 4% p=0.46).

There are discrepancies in the number of babies delivered at a health facility and those delivered by a skilled birth attendant. In three districts in particular, the number of facility deliveries were much higher than the number of SBA deliveries: Samfya (34% difference), Chama (36%) and Mongu (6%). In these three cases, it seems that women are going to the health facilities to deliver but are not assisted by a skilled attendant. The lack of SBAs in some districts is a supply-side constraint that has the potential to undermine the work of the SMAGs.



	Serenje	Chitambo	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa
% by skilled attendant	83%	90%	61%	59%	78%	81%	50%	85%	79%
% delivered in facility	87%	90%	95%	95%	84%	81%	53%	91%	79%
Diffrence	4%	0%	34%	36%	6%	1%	2%	6%	0%

Figure 25 Delivery practices across the districts

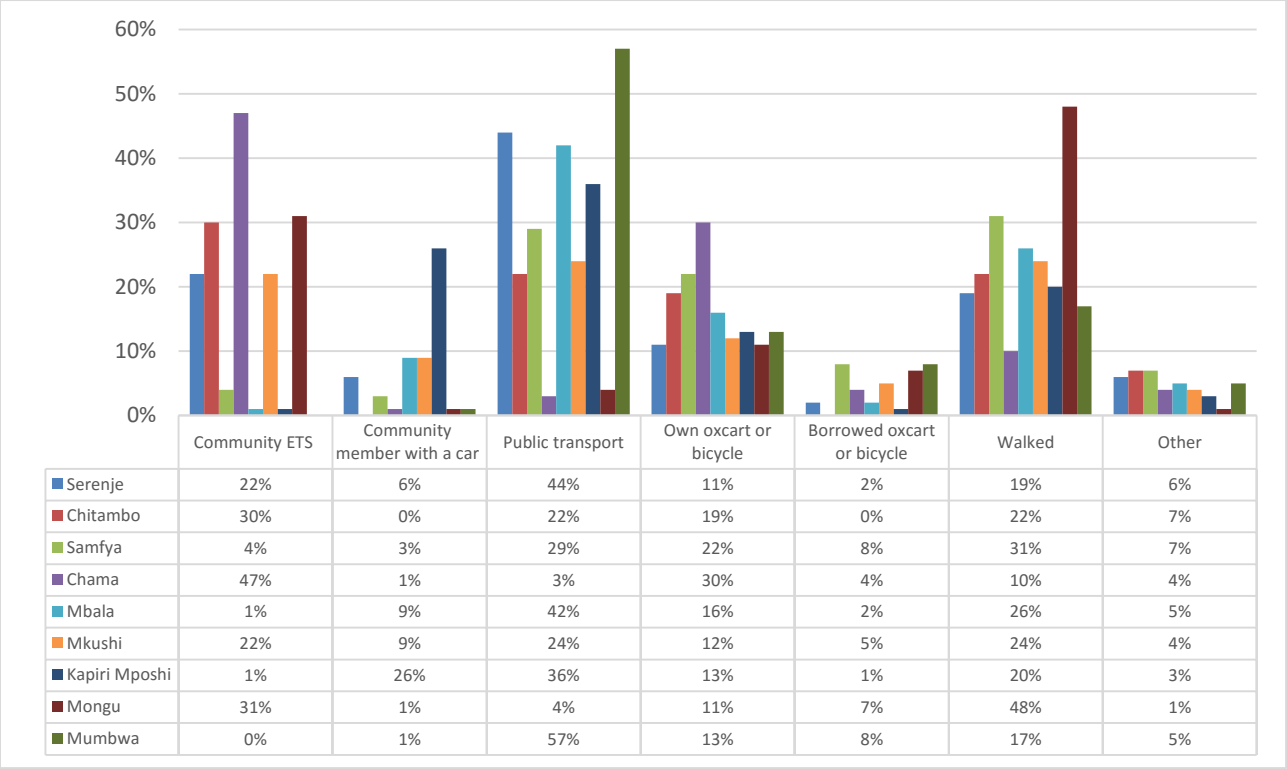
In intervention sites, there is a significant difference between tidy homes and where a baby was delivered. 60% of mothers with tidy homes delivered at a heath facility, compared to 55% with untidy homes (p=0.013). In control districts, the respective figures were 63% and 63% (p=0.971, not significant). The results on delivery by a skilled birth attendant were not significantly different when correlated with condition of the household. A similar pattern is observed when cross-tabulating the extend the woman seems to look after herself and facility delivery. Women who seem to look after themselves better were significantly more likely to deliver at a health facility (59% vs 45%; p=0.004); and the respective figures for control sites were (59% vs 61%; p=0.434). Again, there was no significant difference when correlated with skilled birth attendant (p=0.103 in intervention, p=0.730 in control).

In both intervention and control districts, there were more home deliveries among women who felt that other people were not respecting or supporting them as much as they needed (intervention 22% vs 12%, p=0.01); control: 17.1% vs 9%; p=0.01). In intervention sites, 17% of women who were not delivered by an SBA were not adequately supported, compared to 12% who were delivered by SBA but mentioned not being adequately supported (p=0.014). Respective figures for control sites were 15% vs 9%, p=0.003) indicating significance in both cases. Thus women not adequately supported were more likely to deliver without SBA.

Other important findings include:

- Nearly 2% of women (intervention 1%, control 2%) delivered their babies alone. This accounts for more than 29 women in the sample, and most were from Kapiri Mposhi (12) and Serenje (8).
- In Mongu, non-skilled health personnel (EHT, cleaners etc.) delivered 7% of babies at health facilities.
- Of 63 (3% of total) babies delivered on the way to the facility, 43 (67%) were from intervention sites (Mongu 16, Mkushi 18 and Serenje 9). This shows an attempt to access care.
- Most C-sections (34 out of 57 or 60%) were conducted in control districts, indicating that normal vaginal delivery is more common across intervention sites. One possible explanation for this is

that women are arriving at the health facility earlier in intervention than control sites, and hence avoiding situations where complications progress to surgical intervention. However, there may be other explanations too.

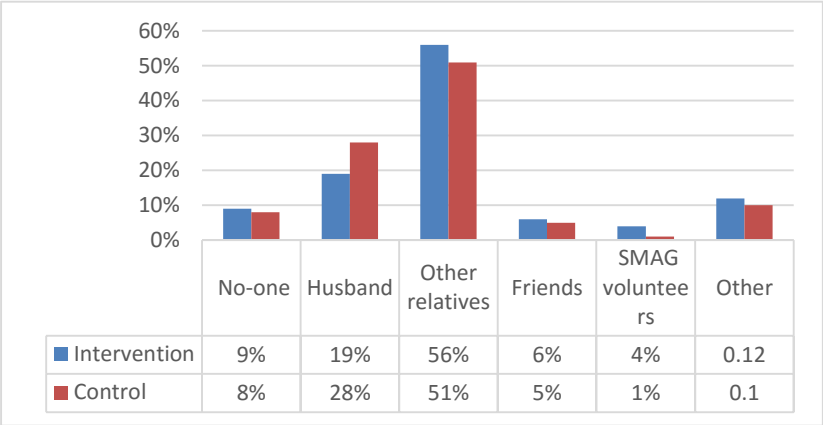


	Community ETS	Community member with a car	Public transport	Own oxcart or bicycle	Borrowed oxcart or bicycle	Walked	Other
Serenje	22%	6%	44%	11%	2%	19%	6%
Chitambo	30%	0%	22%	19%	0%	22%	7%
Samfya	4%	3%	29%	22%	8%	31%	7%
Chama	47%	1%	3%	30%	4%	10%	4%
Mbala	1%	9%	42%	16%	2%	26%	5%
Mkushi	22%	9%	24%	12%	5%	24%	4%
Kapiri Mposhi	1%	26%	36%	13%	1%	20%	3%
Mongu	31%	1%	4%	11%	7%	48%	1%
Mumbwa	0%	1%	57%	13%	8%	17%	5%

Figure 26 How women got to the health facility to deliver their babies

Both female and male respondents were asked to indicate how they got to the health facility to deliver their babies. The results show that ETS was widely used by women in intervention districts (30%); followed by walking (27%), public transport (16%) and own bicycle or cart (27%); other, including friend's car, hospital ambulance etc (19%).. In control districts, the predominant mode of transport was public transport (40%) followed by walking (24%) and own cart or bicycle (17%).; other, including friend's car, hospital ambulance etc (19%). The results show that less than a fifth of all women have their own transport. Where available, ETS has replaced the use of public transport. In the MORE MAMaZ intervention districts, reliance on ETS ranged from 47% of women in Chama to 22% in Serenje and Mkushi. In all intervention districts, however, the endline survey results show a high level of reliance on ETS.

After screening for those who gave birth at home and those who were having their first babies, the resulting sample of 1,804 women was made up of 1,002 women in intervention and 802 in control districts. These women were asked to indicate who looked after children when they went for delivery. There are similar patterns observed across both control and intervention districts. However, differences between intervention and control districts were not significant for the responses "No one" (p=0.99), "friends" (p=0.036) and "other" (p=0.075). More husbands in control districts (28%) were looking after children than in intervention districts (19% p<0.011); while the percentage of 'other relatives' was higher in intervention (56%) than in control districts (51% p=0.013). This result shows that in control districts, significantly more husbands were looking after the children while in intervention districts, significantly more relatives and SMAG volunteers were also taking part, suggesting a greater emphasis on shared responsibility within the intervention sites.

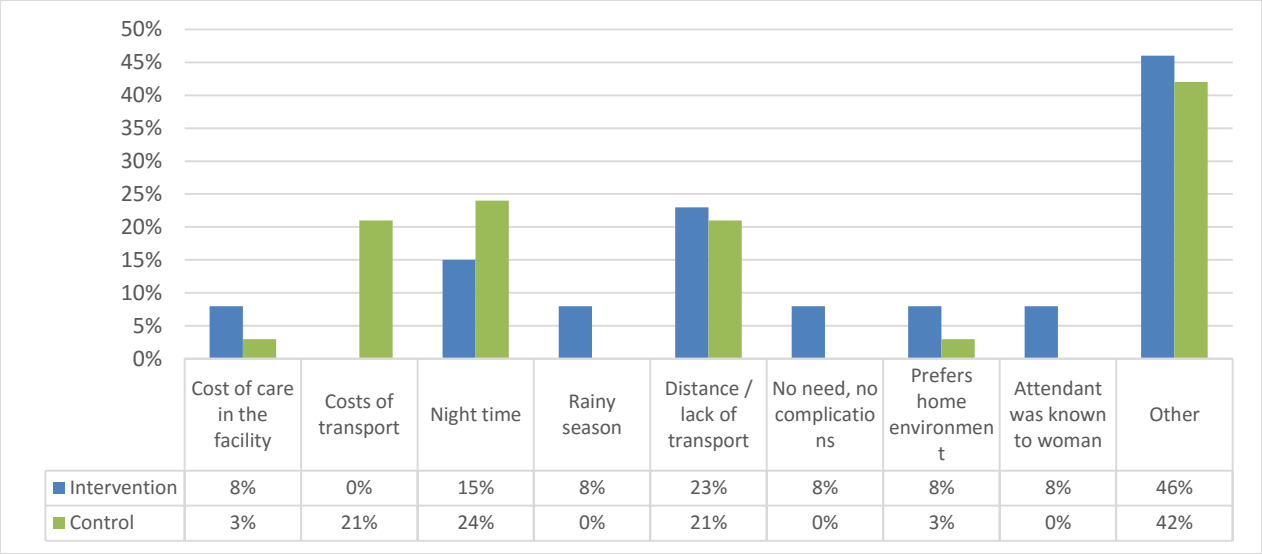


	No-one	Husband	Other relatives	Friends	SMAG volunteers	Other
Intervention	9%	19%	56%	6%	4%	0.12
Control	8%	28%	51%	5%	1%	0.1

Figure 27 Who looked after children when you went for delivery

A total of 311 women (13%) reported that they delivered their babies at home or at the home of a friend. These were made up of 91 women in intervention sites (7% of all women surveyed in intervention districts) and 220 women (20%) in control sites[22]. The reasons why these women chose to deliver at home are given in the figure below. Predominant reasons fell into the 'other' category, which included a multiplicity of reasons, included unexpected deliveries with short labour, deliveries before the due date and cases where the woman was alone. Far fewer of the 91 women in intervention sites who did not deliver in a health facility did so for reasons that can be associated with attitudinal barriers (e.g. 'preferred home environment', 'no need, no complication', or 'attendant was known to woman'). The majority of women in this category failed to deliver in a health facility due to practical / logistical barriers. Distance or lack of transport was the second-most cited reason. Community monitoring system data from the MORE MAMaZ intervention sites indicates that 38% of ETS transfers happen at night. The fact that fewer respondents in intervention sites give 'night time' as a reason to deliver at home suggests that ETS provides a valuable '24/7' service.

[22] Those who delivered on the way to the facility are not included in this particular analysis.



	Cost of care in the facility	Costs of transport	Night time	Rainy season	Distance / lack of transport	No need, no complications	Prefers home environment	Attendant was known to woman	Other
Intervention	8%	0%	15%	8%	23%	8%	8%	8%	46%
Control	3%	21%	24%	0%	21%	0%	3%	0%	42%

Figure 28 Reasons why some women chose to deliver at home

4.7.1 Maternal complications

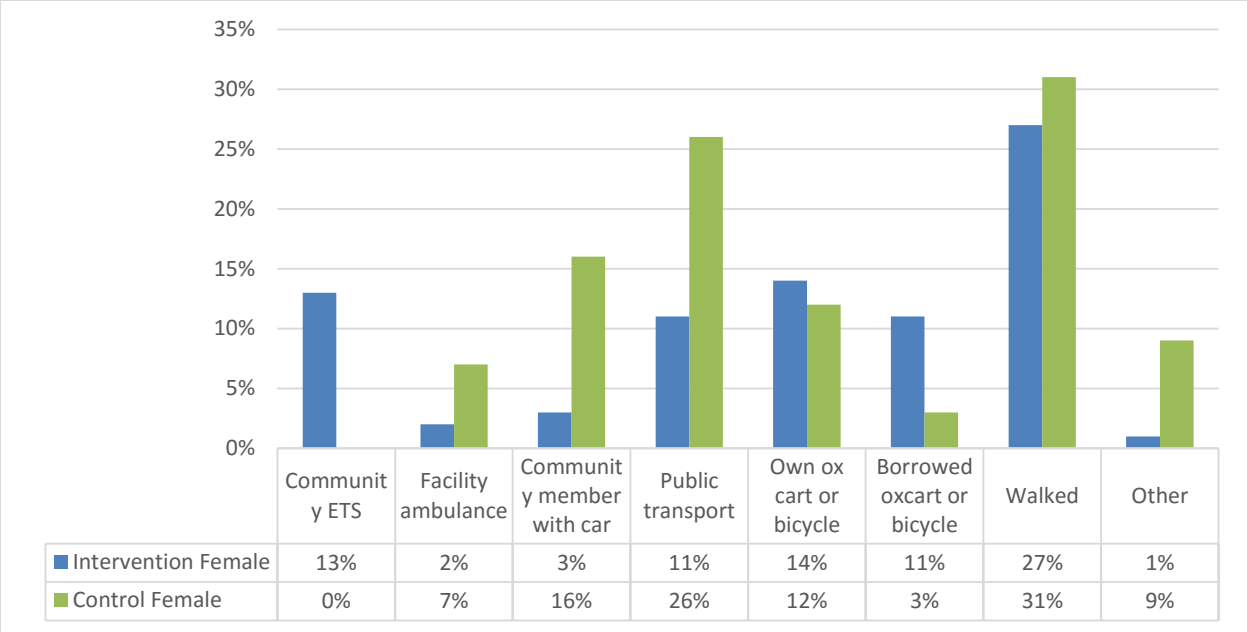
A total of 330 women (187 in intervention districts and 143 in control) indicated that they had had a maternal compilation. This represents 15% of all women surveyed, and fits with the expected proportion of deliveries that result in complications. Additional data on complications was obtained from 153 partners of the women who reported complications (intervention 73, control 80). The types of complications reported by these 330 women and 153 men are given in the table below. The leading complication that was reported by women was severe bleeding from the vagina (intervention 20%, control 30%), followed by swollen hands and feet (intervention 16%, control 10%) and severe headache (intervention 13%, control 13%). The top complications that were reported by men about their wives were similar (see table below). Severe bleeding from the vagina and swollen hands and feet were the only complications that were significantly different between intervention and control districts ($p<0.05$), with both more reported in the intervention districts.

Respondents were asked if the complications had occurred when the woman was at the health facility. 46% of women in intervention districts reported that they were at the health centre, compared to 55% in control sites ($p=0.043$). It is worth noting that some of these complications could occur prior to or after labour / delivery (e.g. fever, signs of pre-eclampsia or sepsis) and hence are unlikely to occur at the health facility. Knowledge of all potential maternal danger signs was better in intervention sites, meaning that women in these sites would be more likely to recognise a complication and categorise it as such in the survey. Hence the danger signs that occur in pregnancy or close to delivery (pre-eclampsia, bleeding, malaria – fever) would be categorised as maternal complications by folk in intervention communities (and would occur when the woman is in the community) but not necessarily recognised as such by women in control districts.

Table 22 Reported complications

	Intervention		Control	
Sex	Female	Male	Female	Male
Severe bleeding from the vagina	20%	13%	30%	26%
Fitting	4%	1%	1%	1%
Swollen hands or feet	16%	27%	10%	11%
Severe headache	13%	24%	13%	12%
Severe fever	12%	6%	11%	4%
Foul smelling discharge	6%	3%	4%	3%
Blurred vision	2%	1%	2%	3%
Prolonged labour of 12 hours or more	12%	18%	12%	15%
Placenta did not follow the baby in 30 minutes	8%	6%	7%	5%
Part of the baby other than head comes first	4%	8%	6%	7%
Other	34%	21%	25%	34%

In each of intervention and control sites, 80% of women reported that they tried to get to the facility when the complication occurred. The total numbers of women who were not at the health facility when the complication occurred were 178 in intervention sites and 68 in control, totalling 246. The transportation methods that were used by the 80% of women who tried to get to the health facility are listed below. The majority of women in control districts walked (31%), used public transport (26%) or relied on a community member (16%). In intervention districts, transport options were more diverse, including walking (27%), own cart or cycle (14%), and ETS (13%). Only use of ETS and use of a community members' cart or cycle were significantly different between intervention and control districts (p=0.05). The results seem to show that ETS has met a need for emergency transport. They also show that transportation is more easily shared in the intervention districts, which, in turn, suggests greater collective support for pregnant women. The data collected shows that for sampled women and men, all mothers survived the complication, while 96% of the babies were also reported to have survived.



	Community ETS	Facility ambulance	Community member with car	Public transport	Own ox cart or bicycle	Borrowed oxcart or bicycle	Walked	Other
Intervention Female	13%	2%	3%	11%	14%	11%	27%	1%
Control Female	0%	7%	16%	26%	12%	3%	31%	9%

Figure 29 How women with complications got to the health facility

A fifth, or 37 of the women who delivered at home (intervention 20%, control 21%) indicated that they were fined for doing so. On average, women in intervention sites were fined K15 while those in control districts reported average fines of K30. The range of fines was large, with a minimum K1 and maximum of K100. The median fine was K1 in intervention sites and K37.50 in control districts. Fines, usually levied by traditional leaders, but sometimes also by facility staff, were not endorsed by the programme. In fact, programme staff proactively advocated for their removal. The low median fine in intervention districts suggests that there may be greater emphasis on using fines as a threat or disincentive for home delivery, rather than as a resource-generation mechanism. This implies, therefore, that traditional leaders in intervention sites, are more 'on message' with community-wide efforts to change social norms in favour of institutional delivery than traditional leaders in control sites.

4.8 Post-delivery practices

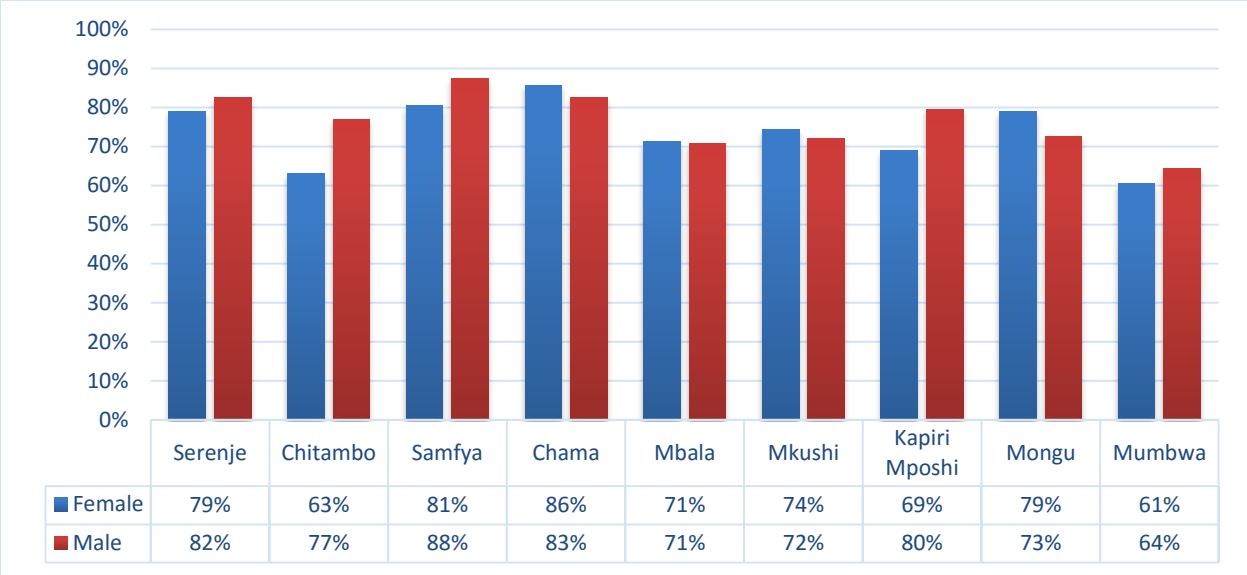
Respondents were asked whether they had sought post-natal care (PNC) after the birth of the last child. Almost all females 90% (intervention 93%, control 87% p<0.010) indicated that they had sought PNC. 92% of male respondents also indicated that their partner had taken up PNC (intervention 93%, control 90% p= <0.010). A significantly higher 13% of women in control districts had not taken up PNC compared to 7% in intervention districts (p<0.010). By district, the highest percentages of women not taking up PNC were registered in Kapiri Mposhi (20%), Mbala (16%) and in Samfya (11%), all control districts. The highest rates of PNC uptake were observed in Mongu (99%); Mumbwa (98%), Chama (90%) Mkushi (90%), Serenje (90%) and Chitambo (90%).

Table 23 When did you first go for the first PNC visit?

		Serenje	Chitambo	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa
Female	Within 24 hours	12%	19%	11%	2%	2%	21%	26%	22%	13%
	Within 1-6 days	30%	48%	21%	42%	38%	28%	15%	29%	31%
	After 6 days	55%	33%	63%	53%	56%	45%	55%	46%	57%
	Don't know	3%	0%	6%	2%	5%	6%	4%	3%	0%
	Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
	Women with some PNC	*97%*	*100%*	*94%*	*98%*	*95%*	*94%*	*96%*	*97%*	*100%*
Male	Within 24 hours	14%	15%	7%	2%	1%	25%	21%	18%	15%
	Within 1-6 days	26%	39%	23%	55%	33%	22%	12%	30%	37%
	After 6 days	57%	46%	68%	42%	64%	46%	66%	49%	48%
	Don't know	3%	0%	3%	2%	2%	7%	1%	2%	0%
	Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
	Women with some PNC	*97%*	*100%*	*97%*	*98%*	*98%*	*93%*	*99%*	*98%*	*100%*

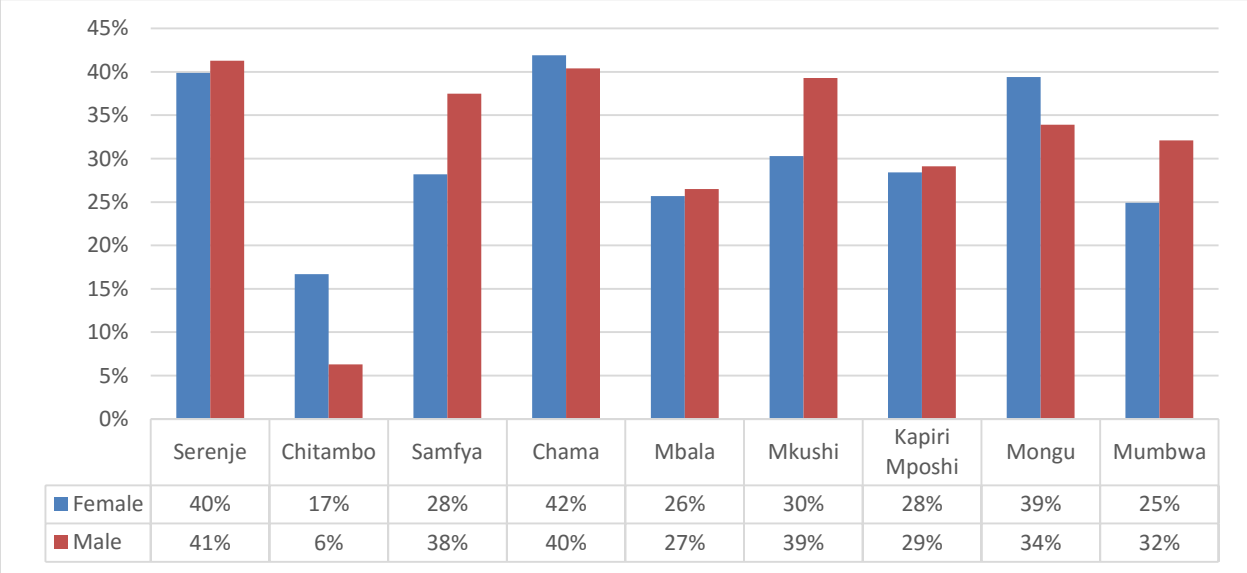
Women were asked to indicate the timing of the first PNC visit. The results are presented in the table above. The percentage of women who reported that they went for PNC within 6 days was 48% in intervention districts (baseline was 42%), significantly higher than the 39% recorded in control districts. Most women received PNC at a health facility (93%) and few at an outreach activity in the community (6%) and this pattern was consistent across intervention and control districts (p=0.255).

The percentage of women who reported that health workers had talked to them about family planning was a high 75% (intervention 79%, control 71% p<0.010); and equally high among male respondents (76%) but without significant difference between district types (intervention 77%, control 76%; p=0.223). The results seem to show that significantly more women in intervention districts were exposed to family planning than in control districts, although the same cannot be said about their partners. Respondents were also asked if they were currently using a method of family planning. A significantly higher proportion in intervention districts (38%) were using a method than in control districts (27%, p<0.010). The baseline situation in intervention sites was 26%, which indicates that use increased by 12% over the timeframe of MORE MAMaZ. The results from responses from men showed an insignificant difference in use of contraceptive methods in intervention and control districts (intervention 38%, control 32%; p=0.0532).



	Serenje	Chitambo	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa
Female	79%	63%	81%	86%	71%	74%	69%	79%	61%
Male	82%	77%	88%	83%	71%	72%	80%	73%	64%

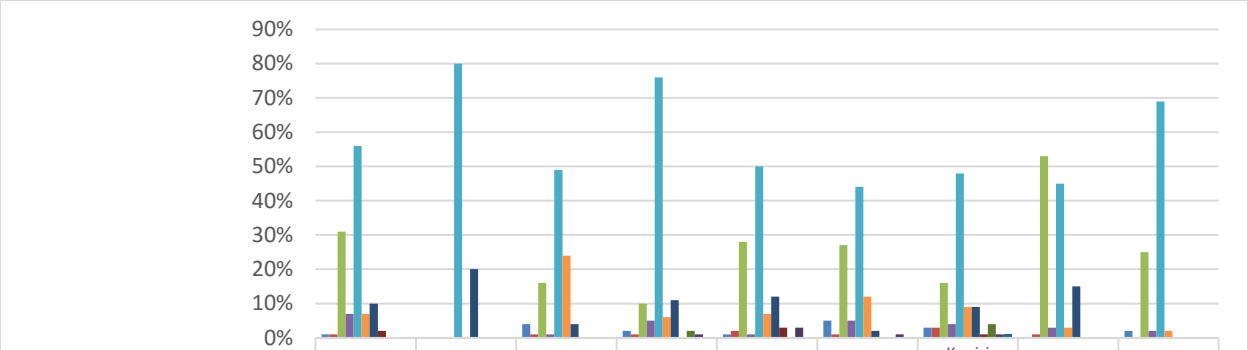
Figure 30 Percentage of respondents who were exposed to a modern method of family planning by health workers during PNC visit



	Serenje	Chitambo	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa
Female	40%	17%	28%	42%	26%	30%	28%	39%	25%
Male	41%	6%	38%	40%	27%	39%	29%	34%	32%

Figure 31 Percentage of respondents reporting use of modern contraception method.

Among women, contraceptive use was highest in Chama (42%) Serenje (40%) and Mongu (39%); and lowest in Chitambo (17%) Mumbwa (25%) Kapiri Mposhi (28%) and Samfya (28%). Given the low sample size in Chitambo, it is possible that the low result recorded there was by chance. The methods of contraception that were reported as being used by women are given below. The predominant methods are injectable (55%), the pill (27%) and male condoms (9%).



	Serenje	Chitambo	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa
Female sterilisation	1%	0%	4%	2%	1%	5%	3%	0%	2%
Male sterilisation	1%	0%	1%	1%	2%	1%	3%	1%	0%
Pill	31%	0%	16%	10%	28%	27%	16%	53%	25%
Inter uterine device	7%	0%	1%	5%	1%	5%	4%	3%	2%
Injectibles	56%	80%	49%	76%	50%	44%	48%	45%	69%
Implants eg Jadel	7%	0%	24%	6%	7%	12%	9%	3%	2%
Male condom	10%	20%	4%	11%	12%	2%	9%	15%	0%
Female condom	2%	0%	0%	0%	3%	0%	1%	0%	0%
Rhythm/natural family planning	0%	0%	0%	2%	0%	0%	4%	0%	0%
Withdrawl	0%	0%	0%	1%	3%	1%	1%	0%	0%
Other	0%	0%	0%	0%	0%	0%	1%	0%	0%

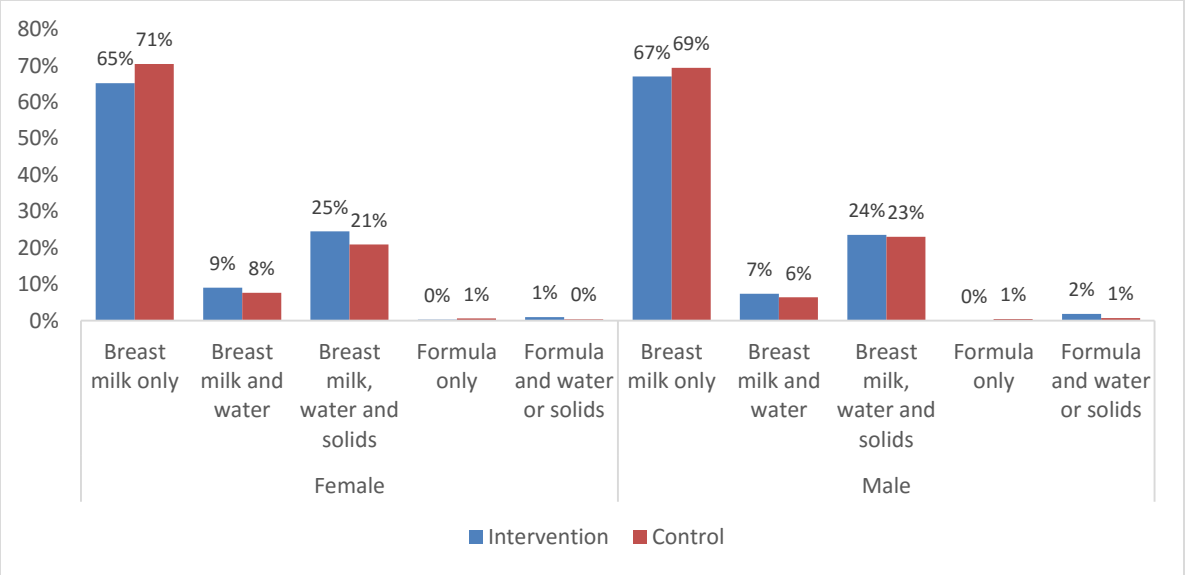
Figure 32 Contraception method used by women

The table and figure below show what women and men reported to be feeding their babies. The survey targeted women with babies under the age of 6 months, all within the recommended age for exclusive breastfeeding. Across the districts, rates for exclusive breastfeeding range from a low 38% observed in Serenje to as high as 82% in Chama and Kapiri Mposhi. More women in control districts (71%) were exclusively breastfeeding than in intervention districts (65%, p=0.021). Although included as a module in MAMaZ, new-born care was not offered as part of the training of SMAGs in MORE MAMaZ due to funding constraints. Hence these results are not unexpected.

		Serenje	Chitambo	Samfya	Chama	Mbala	Mkushi	Kapiri Mposhi	Mongu	Mumbwa
Female	Breast milk only	38%	57%	54%	81%	73%	70%	82%	70%	74%
	Breast milk and water	19%	7%	13%	3%	8%	7%	4%	9%	5%
	Breast milk, water and solids	42%	36%	32%	15%	17%	23%	14%	20%	20%
	Formula only	1%	0%	0%	0%	2%	0%	0%	0%	0%
	Formula and water or solids	1%	0%	0%	1%	1%	0%	0%	1%	0%
Male	Breast milk only	43%	67%	51%	83%	73%	64%	84%	74%	76%
	Breast milk and water	14%	7%	13%	5%	5%	9%	5%	4%	2%
	Breast milk, water and solids	43%	27%	36%	9%	17%	27%	12%	20%	22%
	Formula only	0%	0%	1%	0%	2%	0%	0%	0%	0%
	Formula and water or solids	1%	0%	0%	4%	3%	0%	0%	3%	0%

Figure 33 What are you currently feeding your baby?

The results on baby feeding also show that formula milk is hardly used in any of the districts, and that women who are not breastfeeding exclusively are giving their babies both water and solids.



Use of family planning was not correlated to the state of the home environment nor to how the woman seemed to look after herself. In intervention districts, 36% of women with a well-kept home environment were using a modern method of family planning, compared to 37% whose home environment was deemed to be untidy (p=0.433). In control districts, the respective percentages were 25% and 27%, also without significance difference (p-0.803).

In intervention districts, there was a difference in contraceptive use between women who felt adequately supported (39%) and those who did not feel adequately supported (28%, p=0.169), but this difference was not statistically significant. This could be as a result of the small number of women who reported that they were not adequately supported. The results for control districts (37% and 27% respectively) were, however, significant (p=0.044); showing reduced use of contraceptive methods among women who do not feel adequately supported. This is an issue that requires further, more detailed, exploration in future surveys.

4.9 Monitoring Evaluation and Learning Indicators

The hypothesis tested through this endline survey postulates that:

"MORE MAMaZ interventions have led to a statistically significant improvement in maternal and new-born health in programme sites, compared to both baseline situation and other areas where interventions are not occurring."[23]

[23] The Null Hypothesis is that there is no difference between intervention sites and baseline and control sites.

To test the hypothesis, data on agreed indicators was collected to measure progress towards desired MNH outcomes to allow for comparisons across time and between intervention and control sites. If the null hypothesis of no significant change is rejected, this provides further evidence that the MAMaZ initiatives work. MORE MAMaZ aimed to go beyond MAMaZ and beyond the proof of principle that MAMaZ interventions work, to demonstrate that scaling up is feasible.

The results presented in Table 24 show that on the basis of the indicators set for the programme, MORE MAMaZ is achieving its set objectives.

Table 24: Comparison of MORE MAMaZ Baseline and endline results

	MORE MAMaZ							MAMaZ[24]					
	Intervention				Control			Intervention			Control		
	Baseline [25]	Endline	% change	p-value [26]	Baseline[27]	Endline	% change	Baseline	Endline	% Change	Baseline	Endline	% change
Indicator[28]	A=E+(H-G)	B	B-A	B vs D	C	D	D-C	E	F	F-E	G	H	H-G
% of women who know that they should receive ANC in TR1	50%	59%	9%	<0.01	56%	54%	-2%	45%	66%	21%	51%	56%	5%
% of women with >3 ANC visits with first visit in TR1	37%	53%	16%	<0.01	41%	33%	-8%	30%	42%	12%	34%	41%	7%
% of women attending ANC within the first trimester	37%	62%	25%	<0.01	40%	44%	4%	31%	44%	13%	34%	40%	6%
% of women who know >=3 maternal danger signs	51%	68%	17%	<0.01	43%	37%	-6%	53%	60%	7%	45%	43%	-2%
% of women who mention an emergency transport plan[29]	29%	43%	12%	<0.01	24%	26%	2%	18%	22%	4%	13%	24%	11%
% of women who mention >2 maternal emergency actions	11%	38%	27%	<0.01	11%	14%	3%	12%	14%	2%	12%	11%	-1%
% delivering with skilled birth attendant	46%	78%	32%	<0.01	46%	68%	22%	40%	68%	27%	40%	46%	6%
% delivering at a health facility	64%	89%	25%	<0.01	62%	78%	16%	49%	75%	26%	47%	62%	15%
% of women receiving PNC within the first 6 days	43%	48%	5%	<0.01	49%	39%	-10%	41%	44%	3%	47%	49%	2%
% of women using a modern family planning method	24%	38%	14%	<0.01	31%	27%	-4%	21%	31%	10%	28%	31%	3%
% of women who think that wife beating is on the decline	Not set	88%	n.a.	<0.01		76%							
% of men who thing that wife beating is on the decline	Not set	89%	n.a.	<0.01		72%							
% of women reporting maternal complication	15%[30]	15%	-	0.081	15%	13%	-2%	16	23	7%	17	22	5%
% of women with complication who tried to access health care[31]	83%	80%	-3%	0.947	82%	80%	-2%	82%	82%	0%	82%	83%	1%

[24] From MAMaZ baseline and endline surveys.
[25] This value (A) was derived by adjusting the baseline value in MAMaZ (E) following the change in MAMaZ control districts (H-G) ((ie A=E+ (H-G)). This is the same as MAMaZ baseline plus the net change in control districts.
[26] Intervention vs control districts.
[27] This value is the same as the MAMaZ endline control districts.
[28] Calculated using responses from women, unless explicitly specified that data came from men.
[29] The question asked was: "What things do you think a pregnant woman to do to prepare for a possible maternal emergency? By maternal emergency, I mean problems during pregnancy, delivery or the first 40 days following delivery. If you do not know, that is OK."
[30] Expected percentage of pregnancies that result in complications.
[31] Calculated only for women who reported that they had a complication.

5 Discussion of the results

This section discusses the main findings from the endline survey. Results from intervention and control districts are compared in broad terms, and checked against those from the DHS survey from 2014. The intention is to establish the extent to which MORE MAMaZ reached its programme objectives.

With regards to data quality, a number of findings, including those on ANC uptake, age and other demographic characteristics are consistent with those obtained from the 2014 DHS survey in the surveyed districts. Another check on data quality was achieved by performing a comparison of variables such as age, mean number of pregnancies and years of schooling between intervention and control sites, and there were no significant differences, as expected. Key challenges on timing of the survey, communication, male participation, and the quality of roads affected the overall logistical processes, and seems to have had minimal impact on the quality of data that was collected.

The review of literature established that uptake of ANC is high in both rural (94%) and urban (99%) settings in Zambia. The median duration of pregnancy at first ANC visit was reported at 4.8 in the 2014 DHS, much higher than what was reported in this survey in intervention (3.0) and control (4.0) districts. It is possible that there have been improvements since the last DHS in ANC uptake across all districts, with evidently more positive outcomes in MORE MAMaZ sites.

Women in intervention sites were significantly more knowledgeable than those in control sites of maternal danger signs, the number of times a pregnant woman should go for ANC, when the first ANC visit should be conducted, and on the reasons for taking up ANC. Knowledge of maternal danger signs was highest in intervention sites where the main source of this knowledge was reported to be SMAGs. This points to an effective training provided through MORE MAMaZ, and complemented by information provided from health facilities. The data also confirms that SMAGs are visiting pregnant women regularly. The role of the SMAG in MORE MAMaZ is thus pivotal to the results achieved.

Knowledge levels on maternal danger signs should ideally lead to practices that lead to a safe pregnancy. The endline survey identified a far higher level of preparedness for, and confidence about having, a safe pregnancy among women and men in intervention versus control sites.

From the literature, a high proportion of Zambian women were informed of danger signs during pregnancy and delivery (96%, per DHS 2014), yet in rural areas institutional delivery rates are only 56%. In the MORE MAMaZ intervention sites knowledge of three maternal danger signs was 68% among women and 70% among men, and yet institutional delivery rates are 89%. This indicates that the relationship between

knowledge and behaviour change is complex. The difference between knowledge and behaviour in the DHS result reinforces the learning within MORE MAMaZ that awareness-raising alone does not address all the barriers and constraints that prevent uptake of essential maternal health services – other interventions that focus on addressing affordability and physical access barriers, practical constraints such as lack of child care, or a woman's lack of confidence to take action, are also required. In the MORE MAMaZ intervention sites, being supported by SMAGs and by an array of community systems that provide safety nets for pregnant women makes a very significant difference to MNH-related behaviour. MORE MAMaZ also learnt that when there is community-wide social approval for behaviour change (e.g. having an institutional delivery, or going early and four times for ANC), this can be as, if not more, important than efforts to increase an individual's knowledge.

There are important lessons here for future demand-side health programming. The first lesson relates to the need to address all demand-side barriers comprehensively and simultaneously. This suggests a need to shift the focus of health education and health promotion efforts away from narrow information-based approaches. The second lesson relates to the need to find ways to change community-wide social norms. This suggests the need to use 'whole community' approaches, rather than targeting individuals or individual households within communities. The large number of SMAG volunteers trained in the MORE MAMaZ intervention sites were able to trigger a whole community response. This cannot be achieved in situations where only one or two SMAG volunteers are trained per community (the approach used in many other sites with SMAGs).

Women and men in the MORE MAMaZ intervention sites reported that they were discussing maternal emergencies more than those in control sites. In intervention sites, discussions are occurring with spouses and in community discussion forums. In control districts, spouses and relatives were the highest mentioned. It seems that MORE MAMaZ provides women and men more opportunities to discuss maternal emergencies, and that these discussions are happening within and outside families, in the latter case involving a broader range of stakeholders at community level. The results show the importance of establishing community level support structures that are not necessarily centered at the health facility to ensure a continuum of care.

As mentioned above, according to the 2014 DHS, facility deliveries are reported as low in rural areas (56%). This survey found that 89% of women delivered at a health facility in intervention districts, compared to a baseline of 64%. The 2014 DHS also shows that only 50% of rural births are attended by a skilled provider. In the surveyed districts, the figures for delivery with skilled birth attendant were much higher, 78% in intervention districts and 68% in control districts.

There were discrepancies in the number of babies delivered at a health facility and those delivered by a skilled birth attendant, especially in Samfya, Chama and Mongu. In these districts, it seems that women are going to the health facilities but not getting service from a skilled personnel[32]. The reported rates for

[32] At the time of writing, further investigations to explain the discrepancies were ongoing.

C-Sections were low, 3%, compared to an expected 5%. This shows that the service is not widely available or utilised in both intervention and control districts.

More than 90% of all respondents indicated that health workers were communicating better, with insignificant differences between control and intervention sites. Nevertheless, 18% (again with insignificant differences between control and intervention sited) also pointed out that they had opted not to use a health facility due to negative attitudes of some health workers. This was evident across all districts, showing that improvements in communication have been registered, but not yet at levels that adequately and systematically facilitate health seeking behaviors.

The 2014 DHS established that knowledge of modern methods of contraception is high, although use is limited. The percentage of women in MORE MAMaZ intervention sites who reported that health workers had talked to them about family planning was a high (75%) without significant difference between district types. Similar to what was observed in the 2014 DHS, contraceptive use was much lower: intervention districts (38%) and control districts (27%).,This result demonstrates that high family planning knowledge levels are not immediately leading to desired practice. Nevertheless, it is worth noting that MORE MAMaZ did not intervene directly on contraceptive use and hence the 12% increase seen in the intervention districts is a by-product of more women being put in contact with the health facility. Overall, the 12% increase in modern contraceptive uptake is a very positive result.

The 2014 DHS provides evidence on the worrying extent and nature of gender violence in Zambia. While MORE MAMaZ did not collect baseline data on gender based violence, insights have been made by comparing responses on perceptions of the incidence of GBV from women and men in intervention and control sites. The data collected from this survey seemed to suggest that wife beating is on the decline, more so in intervention than control districts. While it is possible that this may be the case, especially in intervention sites where more women mentioned declines, the level of bias was likely to be high. The topic of wife beating is sensitive, and also, in many cases the interviews were conducted with the man present (although not within earshot). However, More MAMaZ has moved this discussion out from beyond individual households and hence it is less taboo than it once was.

The MAANDA initiative seeks to empower women. MORE MAMaZ was designed to achieve this, in part, by empowering women to take necessary steps to achieve a safe pregnancy. The results show that the number of women who felt empowered to achieve a safe pregnancy was nearly 30% higher in intervention than in control sites. In addition, women in intervention districts reported a diverse source of support including SMAGS, ETS and community food banks, all of which were absent in control districts.

The percentage of women who reported that they went for PNC within 6 days was significantly higher in intervention districts, than control districts. Given that around 90% of women delivered in a health facility and would have therefore been provided with the first PNC visit within 24 hours, it is possible that the reported figures on PNC visits are an underestimate of the actual uptake of PNC among surveyed women.

The survey collected data on a range of variables to measure MORE MAMaZ's progresses towards attainment of set objectives. The programme seems set to achieve its set objectives, especially in relation to knowledge and attitudes. In many changes, the survey has also shown that very significant changes in

practice are underway, especially in relation to facility delivery and skilled birth attendance, where large percentage increases in utilisation were recorded.

6 Conclusions and recommendations

6.1 Conclusions

This survey sought to collect adequate data to test whether MORE MAMaZ interventions were achieving desired programme objectives. This was achieved by assessing responses from respondents in programme districts and control sites. The survey collected substantial data to compare changes in attitudes, knowledge and practices arising as a result of the programme's demand-side interventions, and this report documented the changes observed. It can be concluded that MORE MAMaZ activities have resulted in positive changes in knowledge of maternal danger signs, birth preparedness and knowledge of community schemes. Changes in practice are also positive, although they lag knowledge in particular, and attitudes to some extent.

MORE MAMaZ interventions support women and girls with MNH knowledge, emergency transport, practical support through mother's helpers, and financial support through emergency savings schemes. These are resulting in more women feeling empowered to achieve a safe pregnancy and opting to deliver at health facilities. The survey has concluded that the majority of babies delivered at health facilities are delivered by skilled birth attendants, although in some districts, shortages of skilled health workers reduce the number of facility deliveries that are SBA deliveries. It has also concluded that all women suffering a maternal complication, and supported by the programme's interventions, survived, as did 96% of their babies.

The recommendations below are provided for the remainder of the current programme and for future programme design.

6.2 Recommendations

Recommendations for MOH and DHMTs

- Ensure that the national roll-out of the SMAG initiative focuses on addressing all the barriers that prevent MNH service utilisation – not only lack of knowledge. This will involve placing considerable emphasis on SMAGs supporting the development of community response systems.
- Test ways to extend the focus of SMAG volunteers so that they play a bigger role in relation to family planning and broader sexual and reproductive health issues, and other PHC issues.

- Ensure that outreach services provide ANC and PNC services as a matter of course.
- Ensure that adequate numbers of SMAGs per community are trained (6-10) so that entire communities can be reached and empowered to support women and girls' health and well-being.
- Ensure that health providers are aware than facility-based fines for women who have a home delivery contravenes government policy. Encourage traditional leaders to drop the practice of introducing fines for home deliveries.
- Emphasise use of contraception as good practice, and put in place mechanisms for provision of reproductive health services at community level or at centres accessible to most women.
- Continue to provide support to SMAGs through a formal supervisory system provided by health facility staff. This will allow them to keep up the good work they are doing with empowering pregnant women.
- Support further exploration of the social factors (e.g. being under-supported or feeling not respected) that affect health access and outcomes.
- Ensure that SMAGs have adequate capacity to address GBV as part of their safe motherhood work.
- Ensure availability of transport from community to health facility is considered as part of overall strengthening referral systems. Community based emergency transport systems can fill a substantial gap

Recommendations for future programmes

- Emphasise ANC practice in trainings and put in place mechanisms for tracking use of knowledge gained. For example, as part of routine programme implementation and monitoring, SMAGs can emphasise the importance of practicing what women are taught and report on observed practices and barriers to implementation of lessons (include for example, a log of each woman's implementation of learnt lessons, including a recording of what is provided at the health facility with each ANC or PNC visit).
- Continue to link demand- with supply side interventions and engage in advocacy to ensure that all facilities have SBAs.
- Continue to monitor the sustainability of positive impacts of MORE MAMaZ interventions on gender- based violence.
- Continue to enable the scale up of MORE MAMaZ interventions by producing materials that can be adopted by partners, including government. Specifically, provide support for the development of policies that facilitate the work of SMAGs, and continue to provide support to districts that choose to adopt the MAMaZ approach.

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Annexes

Annex 1: Terms of reference for the survey

1. BACKGROUND

More MAMAZ is developing and testing approaches that address the factors at household and community level that prevent timely utilisation of emergency maternal and newborn health (MNH) care services, utilisation of other essential maternal and new-born health services, and appropriate home-based care. The plan is to develop implementation models that can be taken to scale in future.

An integral part of the MAMaZ approach is to ensure that approaches piloted are properly monitored and evaluated. A robust evaluation of the demand-side interventions requires collection of baseline and endline information on health care seeking behaviour and costs. An endline survey of births within the previous six months will be carried out in in the five intervention districts (Chama, Kaoma, Mkushi, Serenje and Mongu). The survey will utilise a questionnaire covering knowledge, attitudes and practice of mothers and their husbands/ partners, which is similar to that used for the baseline survey.

As well as enabling comparison of changes across time within selected sites, we also wish to compare impact between sites exposed to different levels of support from More MAMaZ. This endline survey is guided by and will support More MAMAZ's overall Monitoring and Evaluation framework (see Annex C).

2. PURPOSE

An endline survey is required to collect data in the selected sites for comparison against the baseline data as part of overall evaluation of the More MAMaZ programme (see Annex D for sample sizes). Development Data will organise and manage the data collection, entry and cleaning on behalf of More MAMAZ.

3. SPECIFIC TASKS

Preparation

1. Prepare a detailed budget and schedule/plan for the survey.
2. The Survey Manager will familiarise himself with the overall objective of the study, study instrument (identical to that used in the baseline aside from additional questions on family planning (by method) and whether home deliveries were fined), and manual. This will include input form members of the More MAMaZ Technical Advisory Group as required.
3. POrganise and submit all required documents to the Ethics Committee in a timely manner and ensure any other required permissions for carrying out the survey obtained.
4. Recruitment of field interviewers – if possible interviewers should be drawn from those involved in previous surveys.
5. Training and briefing of district data supervisors and interviewers.

6. Organisation of all logistics for data collection (vehicle hire, procurement of stationary/materials, DSA distribution, etc).

Data collection

7. Listing of women with a delivery in the six months prior to the survey, according to agreed sample sizes for each area. It is expected that this will include obtaining information from ANC clinics in the area but may also require consultation with communities to ensure that those not receiving ANC are included. The methods used to undertake this listing should be fully documented.
8. Supervise the implementation of the survey in the designated catchment areas, starting with the implementation districts and then moving on to control districts.
9. Ensure the quality and completeness of data collection.

Data entry and cleaning

10. Enter all data from all completed questionnaires into database and check to ensure accuracy.
11. Ensure the quality and completeness of data entry and verification.
12. Submit a full clean data set to the More MAMaZ team within 4 weeks of completion of data collection.
13. Submit a report of key findings using the baseline survey report as a template for the tables and data to be included.

4. EXPECTED OUTPUTS

1. Detailed budget and schedule/plan.
2. Complete data collection for around 2.200 interviews across the five implementation and five control districts.
3. Full clean data set for all districts.
4. Mapping of communities to MAMaZ intervention sites, including data on distances to nearest BEOC.
5. Report of key findings (mirroring contents of Baseline Survey Report) and also describing fieldwork process including methods for listing women, implementation difficulties, non-responses and any observed bias in sampling frame.

5. Implementation

Development Data will organise and manage the fieldwork for the study.

6. CONSULTANT INPUTS AND TIMEFRAME

Exact inputs will be agreed with the More MAMAZ Consortium.

Activity

Agreed budget and schedule/plan
Detailed plan for fieldwork
Data collection completed in all 11 districts
Data entry and cleaning completed for all districts; data set and report submitted
Final report submitted following feedback

ANNEX A: Key documents

- Survey instrument
- Survey manual
- Baseline survey report

Annex B: Intervention and control districts

Intervention District	Province	Control District	Province
Serenje	Central	Mbala	Northern
Mongu	Western	Mumbwa	Central
Kaoma	Western	Mumbwa	Central
Mkushi	Central	Kapiri Moshi	Central
Chama	Eastern	Samfya	Luapula

Annex D: Sampling by district

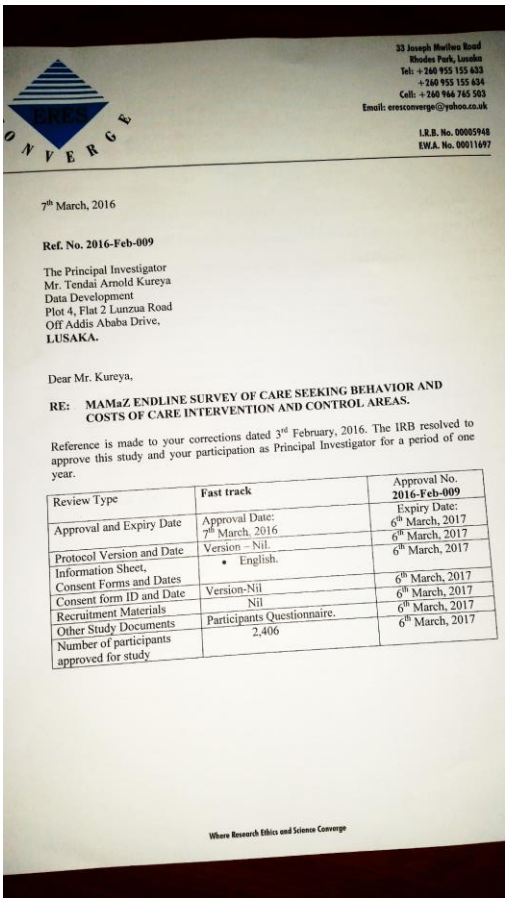
	Team Leader	Districts	Samples	Enumerator days	Survey Days	Travel	Days	Language
Team A	TBA	Serenje	260	52	5.2	1.0	6.2	bemba
		Samfya	200	40	4.0	1.0	5.0	bemba
		Chama	100	20	2.0	2.0	4.0	tumbuka/senga
			560		11.2		15.2	
Team B	TBA	Mkushi	220	44	4.4	1.0	5.4	bemba
		Mumbwa	300	60	6.0	1.0	7.0	Lenje/Tonga
			520		10.4		12.4	
Team C	TBA	Mbala	300	60	6.0	1.0	7.0	bemba/mambwe
		Kapiri	200	40	4.0	1.0	5.0	bemba
			500		10.0		12.0	

Team D	TBA	Mongu	370	74	7.4	1.0	8.4	lozi
		Kaoma	220	44	4.4	2.0	6.4	lozi/nkoya/luvale
			590		11.8		14.8	
	Survey sample size		2170					

Annex 2: Data collection tools

Attached separately

Annex 3: Ethical Approval letter



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7th March, 2016

Ref. No. 2016-Feb-009

The Principal Investigator
Mr. Tendai Arnold Kureya
Data Development
Plot 4, Flat 2 Lunzua Road
Off Addis Ababa Drive,
LUSAKA.

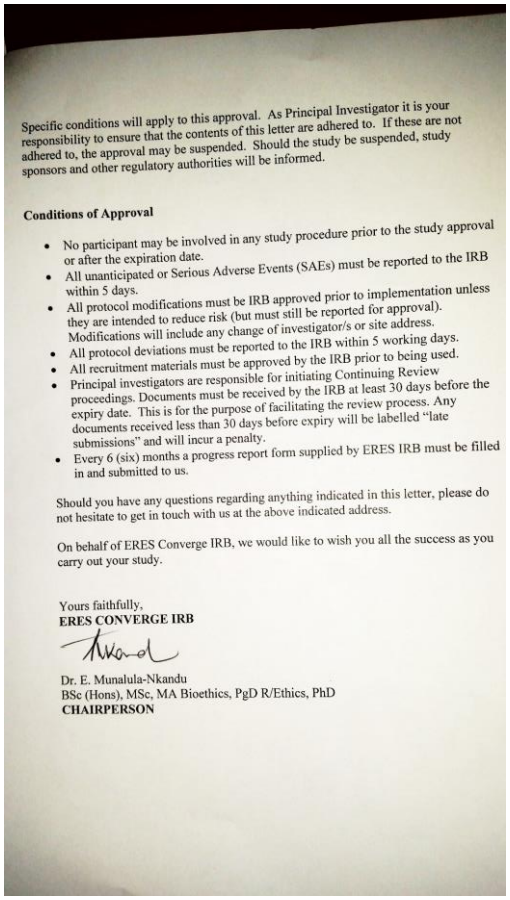
Dear Mr. Kureya,

RE: MAMaZ ENDLINE SURVEY OF CARE SEEKING BEHAVIOR AND COSTS OF CARE INTERVENTION AND CONTROL AREAS.

Reference is made to your corrections dated 3rd February, 2016. The IRB resolved to approve this study and your participation as Principal Investigator for a period of one year.

Review Type	Fast track	Approval No. 2016-Feb-009
Approval and Expiry Date	Approval Date: 7th March. 2016	Expiry Date: 6th March, 2017
Protocol Version and Date	Version – Nil.	6th March, 2017
Information Sheet, Consent Forms and Dates	• English.	6th March, 2017
Consent form ID and Date	Version-Nil	6th March, 2017
Recruitment Materials	Nil	6th March, 2017
Other Study Documents	Participants Questionnaire.	6th March, 2017
Number of participants approved for study	2,406	

Where Research Ethics and Science Converge



Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

Conditions of Approval

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to the IRB within 5 days.
- All protocol modifications must be IRB approved prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to the IRB within 5 working days.
- All recruitment materials must be approved by the IRB prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. Documents must be received by the IRB at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Any documents received less than 30 days before expiry will be labelled "late submissions" and will incur a penalty.
- Every 6 (six) months a progress report form supplied by ERES IRB must be filled in and submitted to us.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of ERES Converge IRB, we would like to wish you all the success as you carry out your study.

Yours faithfully,
ERES CONVERGE IRB

Dr. E. Munalula-Nkandu
BSc (Hons), MSc, MA Bioethics, PgD R/Ethics, PhD
CHAIRPERSON