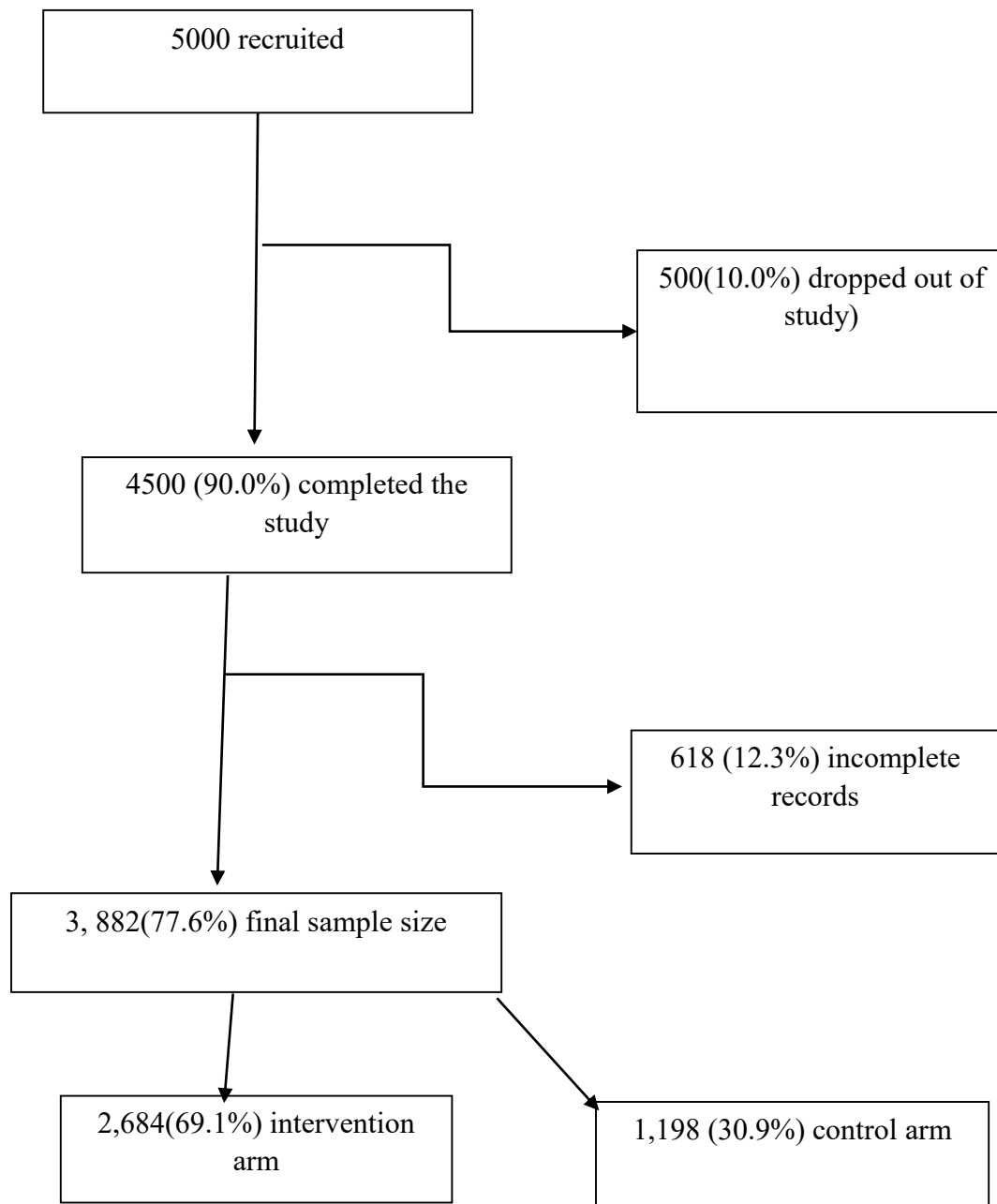


RESULTS

Participants

A total of 5,000 pregnant women were recruited into the study. Of these, 500 (10%) could not be traced by the end of the year and were thus dropped out of the study. A total of 4,500 (90%) pregnant women completed the study, out of whom 618 (13.7%) had incomplete records and were not included in the final analysis. A total final sample of 3,882 respondent (77.6%) were included in the final analysis, comprising 2,684 (69.1%) from the intervention arm and 1,198 (30.9%) from the control arm. A summary of the recruitment algorithm of study participants is shown in figure 1.

Figure 1: Recruitment algorithm



Demographic characteristics

Table 1 shows the socio-demographic characteristics of the respondents from both the intervention and control arms. Most (83%) respondents were married with between 1 and 3 pregnancies (68.5%) at the time of recruitment. There was a significant difference in the median gravidity ($p<0.001$) between the respondents from the intervention arm (median=3; IQR=2.0, 4.0) and the control arm (median=2; IQR=1.0, 4.0). There was no significant difference ($p=0.224$) in the mean age between the mothers in the intervention (mean=24.6 years, SD=6.8) and control arms (mean=24.9 years, SD=6.6). Similarly, there was no significant difference ($p=0.07$) in the number of children between the respondents from the intervention (mean=3.6, SD=2.3) and control arms (mean=3.4, SD=2.2). There was no significant difference ($p=0.21$) in the mean gestation age at first antenatal care (ANC) booking between the respondents in the intervention (mean=5.4 months; SD=2.3) and control arm) mean=5.5; SD=2.4)

Table 1: Demographic characteristics

Variable	Intervention (n=2,386	Control (n=1,198)	Total (n=3,584	P- value
Age (years) Mean (SD)	24.6 (6.8)	24.9 (6.6)		0.224
Number of children Mean (SD)	3.6 (2.3)	3.4(2.2)		0.07
Marital status				0.006
Never married	363 (15.2)	105 (8.8)	468 (13.1)	
Married	1,952 (81.8)	1,021 (85.2)	2,973 (83.0)	
Cohabiting	32 (1.3)	42 (3.5)	74 (2.1)	
Divorced	21 (0.9)	14 (1.2)	35 (1.0)	
Separated	11(0.5)	11(0.9)	22 (0.6)	
Widow	7 (0.3)	5 (0.4)	12 (0.3)	

Gravity, n (%)				0.001*
1	484 (20.3)	341 (28.5)	825 (23.0)	
2-3	1,065 (44.6)	567 (47.3)	1,632 (45.5)	
4-5	510 (21.4)	201 (16.8)	711 (19.8)	
+6	327 (13.7)	89 (7.4)	416 (11.6)	
Median (IQR)	3.0 (2.0;4.0)	2.0 (1.0;4.0)	3.0 (2.0;4.0)	0.001*
Antenatal booking (months) mean (SD)	5.4 (.2.3)	5.5 (2.4)		0.21

Maternal Health Service Utilisation

Table 2 shows comparison in maternal health service utilization between the intervention and control arms. There was a significant difference between the participants in the intervention and control arms with regard to time of first ANC, PNC and under five clinic visits, and number of ANC visits. Participants in the control arm started their ANC visits slightly earlier (mean 4.3, sd=1.1) compared to those in the intervention arm (mean=4.7, sd=1.3). However, participants in the intervention arm returned for their PNC visits earlier (mean=5.7 days, sd=0.9) compared to those in the control arm (mean=7.8 days, sd=4.0). They also started their under-five clinic earlier (mean=30.4, sd=16.8) compared to those in the control arm (mean=35.2, ds=14.1) (Table 2).

Table 2: Maternal Health Service utilisation

Variable	Intervention (n=2, 386) n(%)/ mean(sd)	Control (n=1,198) n(%)/ mean(sd)	P-value
ANC attendance			>0.05
Yes	2,382 (99.8)	1,197 (99.9)	
No	4 (0.2)	1 (0.1)	
First ANC booking (months) mean, sd	4.7 (1.3)	4.3 (1.1)	<0.001
Number of ANC visits (mean (sd))	3.2 (0.8)	3.3 (0.8)	0.76
PNC			
Yes	2,344(98.2)	1,158 (96.7)	0.03
no	42 (1.8)	40 (3.3)	

Timing of PNC (days), mean (sd)	5.7 (0.9)	7.8 (4.0)	<0.001
Under five children's clinic			<0.001
Yes	2, 158 (90.4)	821 (68.5)	
No	228 (9.6)	377 (31.5)	
Timing of under five clinic attendance, mean (sd)	30.4 (16.8)	35.2 (14.1)	<0.001

Primary outcome measure

Primary outcome: Deliveries in interventions and Control arms

Table 3 below shows the number of home and health facility deliveries in the intervention and control sites from January 2012 to December 2014. There was a 15.9% statistically significant increase in the number of institutional deliveries in the intervention arm from 40.3% in 2013 to 57.1% at the end of the intervention in December 2014 ($p < 0.0001$). No such increase was seen in the control arm; the percentage of institutional deliveries dropped from 44.8% in 2013 to 40.6% at the end of 2014. The number of institutional deliveries in the control sites over the three years were: 2014 ($n=1,214$) compared to 2013 ($n=1322$; $p=0.106$) and 2014 compared to 2012 ($n=1182$; $p=0.103$). The birth rates remained similar in both intervention and control regions and also over the three-year period 2012 to 2014 (table 3).

Table 3: Deliveries in interventions and Control arms

Year	Intervention Sites			
	Intervention	Control	Total	P-value
2012	n=4,074	n=2,814	n=6,888	
Home	2,394 (58.8)	1,632 (58.0)		>0.05
Health Facility	1,680 (41.2)	1,182 (42.0)		
2013	n=4,154	n=2,950	7,104	>0.05
Home	2,480 (59.7)	1,628 (55.2)		
Health Facility	1,674 (40.3)	1,322 (44.8)		

2014	n=4,197	n=2,990		<0.0001
Home	1,801 (42.9)	1,776 (59.4)		
Health Facility	2,396 (57.1)	1,214 (40.6)		

Analysis of variance results

Main ANOVA showed a significant difference in the mean number of deliveries between the intervention and control arms at the end of the trial ($F(1,46)=18.85, p<0.001$). Post hoc analysis showed a significant difference in the mean number of deliveries between the a) intervention and control arms for 2014 ($p<0.001$); b) 2014 and the average baseline for 2012 and 2013 within the intervention arm ($p=0.014$) and c) intervention arm in 2014 and control arm in 2013 ($p<0.001$). There was no significant difference between the intervention and control arms at baseline in 2012 and in 2013 ($p>0.05$) (Table 4).

Table 4: Pairwise comparisons using t tests with pooled SD (p-value adjustment method: Bonferroni)

Year/Arm	P values for pairwise comparison				
	2012 Intervention	2012 Control	2013 Intervention	2013 Control	2014 Intervention
2012 Intervention	--				
2012 Control	1.00	--			
2013 Intervention	1.00	1.00	--		
2013 Control	0.56	1.00	0.16	--	
2014 Intervention	0.048	0.0012	0.004	0.000066	--
2014 Control	1.00	1.00	1.00	1.00	0.0017