COMPARISON OF COUNSELLING RATES BEFORE AND AFTER COMMUNITY HEALTH VOLUNTEERS (CHV) ENGAGEMENT IN COUNSELLING ON FAMILY PLANNING AND PPIUD IN KENYA

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ABSTRACT

Introduction

To sensitize women at the community level to take up contraception, community health volunteers (CHVs) underwent a two-day training on family planning (FP) counselling. They visited households to counsel on FP including other health messages and created linkages to the hospitals participating in the postpartum intrauterine device (PPIUD) initiative.

Objective

We sought to compare the counselling rates before and after CHV engagement on FP and PPIUD in Uasin Gishu and Kiambu counties, Kenya, 2017

Methodology

Study Design: Retrospective descriptive study using routinely collected program data of the Kenya PPIUD project.

Study Setting: Uasin Gishu and Kiambu counties, Kenya

Study Population: Women delivering in the teaching hospitals of Kiambu and Uasin Gishu Counties

Data Analysis: We present results from two counties based on routinely collected data comparing counselling rates pre and post involvement of CHVs (April-June) and (July-September) respectively. χ^2 tests of independence was conducted for the bivariate analysis. Multivariate logistic regression was applied to discern factors associated with being counselled on PPIUD. A separate analysis was carried out for each of the study region due to the differences in counseling rates observed over the two study periods. Statistical analysis was conducted using STATA 14.

Results

The demographic characteristics of the women in the two periods of the study were similar. Overall, counseling rates for PPIUD were significantly higher during the post-CHV period (18%) compared to the pre-CHV period (16%). The likelihood of receiving counseling on PPIUD was 19% higher during the post-CHV period (AOR=1.19, 95% CI=1.03-1.38). The odds of counselling on PPIUD increased linearly with the woman's age, number of children and number of pregnancies. Counseling rates were 26% lower among unemployed women compared to women who were employed (AOR=0.74, 95% CI=0.59-0.94).

Conclusion

CHVs can act as a point of contact for FP counselling including PPIUD and can stimulate uptake and follow up of the same. They can promote positive health seeking behavior for reproductive health

INTRODUCTION

In recent years, Kenya has shown improvements in reproductive and child health outcomes. However, the maternal mortality ratio (MMR) of 362 per 100,000 live births estimated by the Kenya Demographic Health Survey (KDHS) in 2014 is still unacceptably high. The recent estimates of WHO, UNICEF, UNFPA, the World Bank Group and UN Population Division also highlight insufficient progress in reducing MMR(1). The combination of family planning (FP) with other strategies of general fertility reduction and abortion services might effectively address about half of all maternal mortality in the developing world (2-4). Nationally, the contraceptive prevalence rate (CPR), any method among married women has increased to 58% in 2014 from 46% in 2008/9 and nearly two thirds (61 percent) of births took place in a health facility. Postnatal care increased from 42% in 2009 to 51% in 2014 (1).

The uptake of long acting contraceptives (LARC), specifically postpartum intrauterine device (PPIUD) remain low in Kenya. Community health volunteers (CHVs) can be utilized to offer FP including PPIUD counselling during their routine service delivery. CHVs are an integral component of the health work force, and provide health education, referral, follow up, case management, basic preventive health care and home visiting services within the community (5). It was hypothesized that the involvement of community structures for delivery of health care as envisaged in the proposals such as the Bamako Initiative (6) can promote uptake of PPIUD. The Kenya community Health Strategy outlines referral as a core function of CHVs. The majority of women who deliver in health facilities go back to their community but do not return for follow-ups thus creating a gap in the continuum of care(1). CHVs can be used to bridge this gap.

Studies have shown that community based health workers can help in bridging the gaps in provision of equitable healthcare and in expanding essential health services to the community through a range of preventive, promotive, and curative services(7, 8). This gap in service delivery between community and health facilities contributes to knowledge deficit and lack of optimal support for optimal FP practices resulting in low uptake of contraceptives. Several studies have reported on the benefits of CHVs in improving health indicators(7-10) and promotion of FP uptake.

The Kenya Obstetrical and Gynecological Society (KOGS) in collaboration with International Federation of Gynecology and Obstetrics (FIGO) and Ministry of Health implemented a pilot project involving the CHVs in provision of counselling for FP including PPIUD at the community levels and creating linkages to the participating institutions in Kiambu and Uasin Gishu counties. This study was carried out as part of a larger study; the Kenya PPIUD project. The project used an android mobile/ tablet data platform to collect data. Due to health care industrial action during the project period, CHVs were trained for two days to offer FP including PPIUD counselling in the community. They visited households to counsel on FP including other health messages and created linkages to the hospitals participating in the postpartum PPIUD initiative. The pre-CHV period was between April to June and the post-CHV period was between July to September.

Kiambu County has a total population of 1,732,689 with a population growth of 1.6% per year and therefore it is projected to be at 1,849,471 by the end of 2018 (11). Kiambu has one of the highest rates of delivery at health institutions which stands at 80.4 per cent and acceptance of FP methods currently stands at 85 per cent with a MMR of 180 per 100, 000 live births (11, 12). In Uasin Gishu County, the population growth rate of 3.8% is high compared to the national population growth rate of 2.8%. However, contraceptive acceptance is low standing at only 34% compared to national average of 46%(13).

We sought to compare the counselling rates before and after CHV engagement on FP and PPIUD in Uasin Gishu and Kiambu counties, Kenya, 2017.

METHODOLOGY

Study Design: Retrospective descriptive study using routinely collected program data of the Kenya PPIUD project. Counselling rates during the pre-CHV period (April to June) and the post-CHV period (July to September) engagement of CHVs were compared.

Study Setting: Kiambu and Uasin Gishu Counties of Kenya. Kenya is divided into 47 administrative counties. Health is devolved to counties.

In Kiambu county, the study took place in Thika Level 5 hospital. It has a catchment population of 5 million people with the patients drawn from surrounding counties of Nairobi, Murang'a, Kirinyaga and Machakos. The deliveries in the maternity unit average 700 per month and thus the human resource is overstretched, making counseling on FP for all women who come to deliver an almost impossible task.

In Uasin Gishu county, the study took place in the Moi Teaching and Referral Hospital. It is the second largest National Referral Hospital in Kenya with a bed capacity of 800 serving a population of over 15 million people. The catchment area includes western Kenya, Parts of Eastern Uganda and South Sudan. The directorate of reproductive health is divided into six sections namely maternal child health (MCH), Labor ward, Antenatal clinic (ANC), Postnatal clinic, gynecological wards and maternity theatre. Of the 1,200 deliveries conducted per month, only 15% of deliveries are of mothers who attended ANC in the facility. Counseling for FP during triage is difficult since most mothers come in active phase of labor and others are emergencies.

The challenges with counseling that were encountered in the two sites necessitated the inclusion of the CHV who acted as the link between the community and the facilities and also provided the necessary feedback for improvement of services. Each woman who attends ANC is given a mother-baby booklet that they keep with them. Those who receive counselling on FP including PPIUD have their booklets stamped as proof of counselling. The women carry their mother-baby booklets with them to labor ward when they are ready for delivery.

Study Population: The study population were records of women who delivered in the facilities described in study setting.

Data Collection and Management: A total of 42 CHVs underwent a two-day training on FP methods including PPIUD using a CHV training package that was developed by KOGS in partnership with Ministry of Health and other stakeholders. They then took this training back to their communities, talked to community leaders, and visited 1,200 households delivering education messages and referrals. Each CHV conducted continuous household mapping to identify pregnant women and maintained an up to date client tracking log register for tracking referrals.

During the household visits the community heath volunteers targeted pregnant mothers, their partners sought consent, provided health education including counseling on postpartum FP. Those who were counselled had their mother-baby booklet stamped as proof of counselling and referred to the health facility for FP including PPIUD services. CHVs link the women to the health facility through ANC or labor ward depending on their gestation in weeks period.

A standardized tool for documentation was created. This tool was completed by the CHVs manually and later entered smart phone/tablet android web platform called Comm-Care-Dimagi. Data from the android platform were relayed to the PPIUD project data collecting center. At the PPIUD project collecting center data were de-identified and stored in excel sheets. Facility coordinators, facility data-in charges, PPIUD project data clerks and principal investigators oversaw data quality assurance.

Data Analysis: All statistical analyses were conducted using STATA 14. The main outcome measure was counselling rates. This is defined as "Number women who have delivered and had received counselling on FP including PPIUD." $\chi 2$ tests of independence was conducted for the bivariate analysis. Multivariate logistic regression was then used to discern key factors associated with being counselled on PPIUD. A separate analysis was carried out for each of the study regions due to the differences in counseling rates observed over the two study periods. Three regression models are presented for each analysis, with variables being added to each subsequent model in conceptual groups. As variables of interest lost significance upon the addition of new variables, additional models were run to determine the cause of the change in significance; these results are reported but not shown in tables. The dependent variable in the analysis was a dichotomous indicator of counselling on PPIUD.

Ethical Considerations: Ethics approval for the PPIUD project was granted by the Ethics Boards of Moi Teaching and Referral Hospital (MTRH), and Kenyatta National Hospital/University of Nairobi.

RESULTS

There were 2,261 women delivered during the pre-CHV period and 3,057 deliveries occurred in the post-CHV period. The demographic characteristics of the study population are shown in Table 1. The demographic characteristics of the women in the two periods of the study were similar. The mean age of women in the two periods of the study was 25.5 (SD=5.5) years in the pre-period and 25.53 (SD=5.53) years in the post-period. There were no significant differences between the two groups when analysed for age, number children, religion, total number of pregnancies, and total number of living children. There was a significant difference in marital status, with the group after CHV counselling having more single women than the group before the CHV counselling.

Table 2, presents PPIUD counselling rates by selected covariates for the two counties and overall. Overall, counseling rates for PPIUD were significantly higher (p=0.018) during the post- CHV training period (18%) compared to the pre-training period (16%).

Table 3 shows the results of the logistic regression modelling carried out to assess the relationship

Table 1: Demographic characteristics of women who accepted to be counselled for PPIUD out of the total number of women who delivered in Uasin Gishu and Kiambu counties, Kenya, 2017

Variable	Period of study		Total N	Total P-Value
	April-June (pre-CHVs) n (%)	July-September (post-CHVs) n (%)		
Age group				
Under 20	275(12.2)	372(12.2)	647	0.332
20-24	843(37.3)	1112(36.4)	1955	
25-29	638(28.2)	848(27.7)	1486	
30-34	323(14.3)	499(16.3)	822	
35+	182(8)	226(7.4)	408	
Education level				
Primary or less	646(28.6)	895(29.3)	1541	0.083
Secondary	1067(47.3)	1358(44.4)	2425	
Tertiary	543(24.1)	803(26.3)	1346	
Marital status				
Single	447(19.8)	706(23.1)	1153	0.013
Married	1806(79.9)	2340(76.6)	4146	
Separated	6(0.3)	10(0.3)	16	
Religion				
Christian	2253(99.6)	3052(99.8)	5305	0.165
Muslim	8(0.4)	5(0.2)	13	
Occupation				
Employed	219(9.7)	331(10.8)	550	0.206
Self-employed	536(23.7)	757(24.8)	1293	
Unemployed	1506(66.6)	1969(64.4)	3475	
# pregnancies				
One	1025(45.3)	1380(45.1)	2405	0.908
Two	594(26.3)	786(25.7)	1380	
Three	364(16.1)	497(16.3)	861	
Four+	278(12.3)	394(12.9)	672	
Number of Living children				
None	11(0.5)	34(1.1)	45	0.152
One	1073(47.5)	1446(47.3)	2519	
Two	590(26.1)	767(25.1)	1357	
Three	347(15.3)	484(15.8)	831	
Four+	240(10.6)	326(10.7)	566	

Key: Pre-CHVs: This is the period before CHVs participated in counselling for FP including PPIUD
Post-CHVs: This is the period when CHVs participated in counselling for FP including PPIUD
PPIUD: Postpartum intrauterine Device

Table 2: Percent of Women in Uasin-Gishu, Kiambu counties of Kenya in 2017 and overall out of the total deliveries counselled on PPIUD

Variable	UASIN-GISHU COUNTY				KIAMBU COUNTY				OVERALL			
	n	N	%	*p-value	n	N	%	*p-value	n	N	%	*p-value
Age group												
Under 20	18	470	4	<0.001	46	177	26	0.290	64	647	10	<0.001
20-24	135	1466	9		155	489	32		290	1955	15	
25-29	162	1099	15		110	387	28		272	1486	18	
30-34	119	585	20		71	237	30		190	822	23	
35+	69	285	24		28	123	2		97	408	24	
Education level												
Primary or less	111	1042	11	<0.001	148	499	30	0.834	259	1541	17	<0.001
Secondary	204	1729	12		197	696	28		401	2425	17	
Tertiary	187	1129	17		65	217	30		252	1346	19	
Marital status												
Single	73	895	8	<0.001	79	258	31	0.750	152	1153	13	<0.001
Married	429	3000	14		329	1146	29		758	4146	18	
Separated	0	7	0		2	9	22		2	16	13	
Religion												
Christian	502	3897	13	0.974	410	1408	29	0.152	912	5305	17	0.364
Muslim	1	8	13		0	5	0		1	13	8	
Occupation												
Employed	78	438	18	<0.001	28	112	25	0.458	106	550	19	<0.001
Self-employed	144	795	18		140	498	28		284	1293	22	
Unemployed	281	2672	11		242	803	30		523	3475	15	
# Pregnancies												
One	144	1795	8	<0.001	180	610	30	0.586	324	2405	14	<0.001
Two	141	995	14		115	385	30		256	1380	19	
Three	107	599	18		67	262	26		174	861	20	
Four+	111	516	22		48	156	31		159	672	24	
# Living children												
None	1	39	3	<0.001	0	6	0	0.452	1	45	2	<0.001
One	153	1860	8		189	659	29		342	2519	14	
Two	146	977	15		116	380	31		262	1357	19	
Three	103	577	18		69	254	27		172	831	21	
Four+	100	452	22		36	114	32		136	566	24	
Period of study												
Pre-CHVs	226	1588	14	0.037	130	673	19	<0.001	356	2261	16	0.018
Post-CHVs	277	2317	12		280	740	38	1	557	3057	18	

PPIUD: Postpartum intrauterine device
N: Represents the number of women counselled on PPIUD
N: Women who had delivered for each given category
***:** p-value for Chi Square Test
Pre-CHVs: This is the period before CHVs participated in counselling for FP including PPIUD
Post-CHVs: This is the period when CHVs participated in counselling for FP including PPIUD

Table 3: univariable and bivariable analysis for women who delivered in Uasin Gishu and Kiambu counties, Kenya, 2017 and received counselling on PPIUD

Variable	UASIN-GISHU COUNTY				KIAMBU COUNTY				OVERALL			
	OR	95% CI	AOR	95% CI	OR	95% CI	AOR	95% CI	OR	95% CI	AOR	AOR (95% CI)
Age group												
Under 20	1.00	-	1.00	-	1.00	-	-	-	1.00	-	1.00	-
20-24	2.55	1.54-4.21	1.74	1.03-2.93	1.32	0.9-1.94			1.59	1.19-2.11	1.34	1-1.81
25-29	4.34	2.63-7.16	2.21	1.28-3.83	1.13	0.76-1.69			2.04	1.53-2.73	1.46	1.05-2.04
30-34	6.41	3.84-	2.73	1.52-4.91	1.22	0.79-1.88			2.74	2.02-3.71	1.75	1.21-2.53
35+	8.02	10.70	3.33	1.77-6.27	0.84	0.49-1.44			2.84	2.01-4.01	1.78	1.17-2.69
		4.66-										
		13.81										
Education level												
Primary or less	1.00	-	1.00	-	1.00	-	-	-	1.00	-	1.00	-
Secondary	1.12	0.88-1.43	1.42	1.09-1.84	0.94	0.73-1.21			0.98	0.83-1.16	1.13	0.94-1.35
Tertiary	1.67	1.29-2.14	2.15	1.60-2.90	1.01	0.72-1.44			1.14	0.94-1.38	1.30	1.04-1.62
Occupation												
Employed	1.00	-	1.00	-	1.00	-	-	-	1.00	-	1.00	-
Self-employed	1.02	0.75-1.38	1.15	0.83-1.61	1.17	0.73-1.88			1.18	0.92-1.51	1.22	0.94-1.6
Unemployed	0.54	0.41-0.71	0.82	0.60-1.12	1.29	0.82-2.04			0.74	0.59-0.94	0.89	0.69-1.15
Pregnancies												
One	1.00	-	1.00	-	1.00	-	-	-	1.00	-	1.00	-
Two	1.89	1.48-2.42	1.19	0.49-2.90	1.02	0.77-1.35			1.46	1.22-1.75	0.80	0.41-1.57
Three	2.49	1.90-3.27	1.89	0.6-5.94	0.82	0.59-1.14			1.63	1.33-1.99	0.79	0.33-1.9
4+	3.14	2.40-4.12	2.01	0.54-7.50	1.06	0.72-1.56			1.99	1.61-2.46	0.63	0.22-1.79
Living children												
None	1.00	-	1.00	-	-	-	-	-	1.00	1.00	1.00	-
One	3.41	0.46-24.97	3.31	0.45-24.58					6.91	0.95-50.33	7.18	0.98-52.51
Two	6.68	0.91-49	4.98	0.62-40.05					10.53	1.44-76.75	9.95	1.31-75.59
Three	8.26	1.12-60.82	6.05	0.71-51.63					11.48	1.57-83.93	11.02	1.4-86.86
4+	10.79	1.46-79.6	7.22	0.82-63.54					13.92	1.9-101.94	10.38	1.29-83.62
Period of study												
Pre-CHVs	1.00	-	1.00	-	1.00	-	1.00	-	1.00	-	1.00	-
Post-CHVs	0.82	0.68-0.99	0.80	0.66-0.97	2.54	2.00-3.24	2.54	2.00-3.24	1.19	1.03-1.38	1.19	1.03-1.38

PPIUD: Postpartum intrauterine device
OR: Odds Ratio
CI: Confidence Interval
AOR: Adjusted Odds Ratio
CHVs: Community Health Volunteers
Pre-CHVs: This is the period before CHVs participated in counselling for FP including PPIUD
Post-CHVs: This is the period when CHVs participated in counselling for FP including PPIUD

between counseling on PPIUD and the covariates of interest. Overall, the likelihood of a woman receiving counseling on use of PPIUD was 19% higher during the post-training period compared to the pre-training period (AOR=1.19, 95% CI=1.03-1.38). The odds of counselling on PPIUD increased linearly with the woman's age, number of children and number of pregnancies. Counseling rates were 26% lower among unemployed women compared to women who were employed [AOR=0.74, 95% CI=0.59-0.94]

DISCUSSION

Community health volunteers play an important role in promoting uptake of FP including PPIUD. Integrating CHVs into the health system, is one of the proven high-impact practices in FP. Overall, counseling rates for PPIUD were significantly higher (18%) during the post- CHV period compared to the pre-CHV period (16%). Given their proximity to the communities in which they work and live, CHVs can break down social barriers and make health information interpretable and comprehensible to their peers(14, 15). They can "demystify" the healthcare system to the population and successfully encourage linkage and uptake of services. Counselling rates were however lower (12%), in Uasin Gishu county in the post-CHV period compared to the pre-CHV period (14%). The opposite was recorded in Kiambu county, where counselling rates were higher (38%) in the post-CHV period compared to the pre-CHV period (19%). This indicates variability between counties, which was not interrogated in this study.

In this study the following factors increased the likelihood of receiving counselling on PPIUD, having a tertiary education, having a trained CHV in the area and having two or more living children. A study from the western part of Kenya, also shows that the level of education is a significant factor in increasing uptake of FP(16). High counselling rates during the post-CHV period suggests the need to build better working partnerships with CHVs by creating career opportunities and other means of motivations to boost their productivity and sustain gains associated with their activities(17). The odds of counselling on PPIUD increased linearly with the woman's age, number of children and number of pregnancies. This is as expected since older women, with more pregnancies and children are more likely to be targeted by counsellors, and are more likely to agree to being counseled on contraception and also have higher odds of using contraception(18).

The major limitation for this study is that we were not able to assess the working hours and the community perception of the CHVs. For example, some of the reported successes can be influenced by factors beyond the CHV inputs. In addition, we were not able to evaluate between county variability.

This study has shown that if well trained and utilized, CHVs can help increase uptake for FP including PPIUD. These findings raise the need for more efforts to make counselling on PPIUD widespread among women of reproductive age in Kenya through community health volunteers. More studies are needed to further evaluate this finding.

CONCLUSION

CHVs can act as a point of contact for FP counselling including PPIUD and can stimulate uptake and follow up of the same. They can promote positive health seeking behavior for reproductive health.

AUTHOR CONTRIBUTIONS

The listed authors participated in design, planning and manuscript writing. WS and JM helped with the data retrieval, BE and TA did the statistical analyses and interpretation of the findings.

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CONFLICT OF INTEREST

Though the authors work in the FIGO PPIUD project, FIGO had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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