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Effect of Community Health Strategy on Utilization of Post-Partum Family Planning Services in Mwingi West Sub-County

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Abstract

World Health Organization defines Postpartum Family Planning (PPFP) as the prevention of unintended pregnancy and closely spaced pregnancies through the first 12 months following childbirth. PPFP focuses on the prevention of unintended and closely spaced pregnancies through the first 12 months following childbirth. Globally, PPFP is a key life-saving intervention for mothers and their children. PPFP averts more than 30% of maternal deaths and 10% of child mortality. The aim of this study was to measure the effect of Community Health Strategy (CHS) in utilization of PPFP among women in Kitui County-Kenya. The study used quasi experiment with one pretest and two post-test surveys conducted in both intervention and control sites. Data was collected from 422 women in each survey. Participants in intervention site received Maternal and Child Health (MCH) education including counselling on PPFP. In the control site, participants received standard MCH care provided by Kitui County government. Utilization of PPFP increased significantly by 8.9% (Z= 2.5135, P<0.05) in intervention arm-end-time survey compared to intervention arm-baseline survey. Women in intervention arm-end-term survey were 1.4 times more likely to use a modern PPFP method at 9-12 months PP compared to women at intervention arm-baseline survey [Adj. OR=1.386, P<0.05; (95% CI: 1.164-1.651)]. No significant difference was observed in utilization of PPFP in the surveys conducted in control site. CHS significantly increased utilization of modern PPFP methods among women at 9-12 moths PP in intervention site. To increase utilization of modern PPFP methods in Kenya, we recommend scaling up the CHS intervention in areas where it has not yet been implemented and supporting other CHW led interventions promoting use of modern PPFP methods.

Key words: ***Community health strategy, postpartum family planning***

Introduction

Globally, Maternal Mortality Rate (MMR) fell by nearly 44% over the past 25 years, to an estimated 216 maternal deaths per 100, 000 live births in 2015, from a MMR of 385 in 1990 (WHO, 2015a). This is attributed to global efforts aimed at realization of the Millennium Development Goals (MDGs). Kenya is among 18 countries in Sub-Saharan Africa estimated to have very high MMR in 2015 with 510 deaths per 100, 000 live births, (WHO, 2015a) and (Kenya National Bureau of Statistics (KNBS) & ICF Macro, 2014). In Kitui County, MMR is estimated at 330 per 100,000 live births (County Government of Kitui, 2013).

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Similarly, Substantial global progress has been made in reducing child deaths since 1990. The number of under-five deaths worldwide has declined from 12.7 million in 1990 to 5.9 million in 2015 (UNICEF, 2015a). Despite these gains, Sub-Saharan Africa remains the region with the highest under-five mortality rate compared to other regions in the world, with 1 child in 12 dying before their fifth birthday (UNICEF, 2015a). In Kenya, child mortality rates are still high. Infant Mortality Rate (IMR) as reported by 2014 Kenya Demographic and Health Survey (KDHS) is 39 per 1000 live births while under-five mortality is 52 deaths per 1,000 births (Kenya National Bureau of Statistics (KNBS) and ICF Macro, 2014). In Kitui County, under five mortality rate is 57 per 1000 live births (County Government of Kitui, 2013).

Focus has since shifted from meeting health related MDGs to meeting the Sustainable Development Goals (SDGs) and with this, there is a renewed focus from governments and development partners to help achieve health related SDGs targets. The targets are; a global MMR below 70 per 100,000 live births, and a neonatal mortality rate of 12 or fewer deaths per 1,000 live births by the year 2030 (WHO, 2015a) and (UNICEF, 2015a). To achieve SDG targets related to MCH, efforts need to be directed towards improving Focused Antenatal Care (FANC) coverage, Skilled Birth Care (SBC), improving Infant Vaccination Coverage (IVC), Exclusive Breast-Feeding (EBF) and Post-Partum Family Planning (PPFP) among other MCH domains (WHO, 2015b). This calls for innovative interventions to help improve these MCH outcomes.

Community Health Strategy (CHS) is a Community Health Worker (CHW) led intervention which was designed by the Government of Kenya (GoK) in 2006 to support the delivery of Kenya Essential Package for Health (KEPH) at the community level (Ministry of Health, 2006). The CHS program structure provides for creation of Community Units (CUs) as the basis of PHC service provision. Each CU is designed to serve approximately 5000 people. The service providers in the CUs are trained CHWs and Community Health Extension Workers (CHEWs). CHWs are members of the community identified by the community and trained to serve their communities while CHEWs are trained health professionals (Nurses and Public health officers trained at certificate and/or diploma levels and working for the Ministry of Health). Each CHW is required to provide PHC services to 20 households. The responsibilities of CHEWs are; to supervise CHWs, to facilitate health education sessions in the community and to provide a linkage between CHWs and health facilities (Ministry of Health, 2006).

CHS was initiated in Mwingi West Sub-County - A Rural Arid and Semi-Arid Land (ASAL) in Kenya in March 2011 as a component of the AIDS, Population and Health Integrated Assistance plus-*Kamili* (APHIA plus-*Kamili*) program. The program was funded by the United States Agency for International Development (USAID). The program was implemented by the Ministry of Public Health and Sanitation (MoPHS) of Government of Kenya (GoK) in partnership with the African Medical and Research Foundation (AMREF) (Nzioki *et al*., 2015).

Post-Partum Family Planning (PPFP) prevents unintended pregnancy and closely spaced pregnancies through the first 12 months following childbirth (WHO, 2013). Globally, PPFP is recognized as a key life-saving intervention for mothers and their children (WHO, 2013) and (Pasha *et al.,* 2015). In Kenya, the unmet need for PPFP is high (women at 0 - 5.9 months, PP - 76%, women at 1 year PP - 59%, and women at 2 years PP - 48%) (USAID & MCHIP, 2010). A recent study conducted in Western Kenya indicates that the low uptake of PPFP could be attributed to inadequate sensitization and awareness among women, particularly in rural areas (Naanyu *et al.,* 2013). This call for innovative approaches to help increase awareness among women of reproductive age on the need to utilize PPFP. The aim of this study was to establish the effect of CHS on utilization of PPFP among women at 9 to 12 months Postpartum in Mwingi West Sub-County.

Methodology

The Study Area

This was a quasi-experimental study with intervention and control site. Mwingi West and Mwingi North Sub-Counties were intervention and control sites respectively. Both sub-counties are located in Kitui County. Mwingi West Sub-County has a total population of 111,346 people, while Mwingi North Sub-County has a total population of 150,179 people (Kenya National Bureau of Statistics (KNBS), 2010). Intervention and control sites have similar climatic and ecological characteristics, poor infrastructure and are located in a rural arid and semi-arid area (County Government of Kitui, 2013).

The CHS Intervention

CHS is a CHW led (Ministry of Health, 2006) Primary Health Care (PHC) intervention in which CHWs play a leading role in providing PHC services. Among PHC services provided is MCH education and promotion. CHWs promoted PPFP by identifying newly expectant women in the Community and educating them not only on importance of delivering under Skilled Birth Care (SBC) but they also provided education and counselling on post-partum care including counselling on PPFP. CHWs then linked these mothers to local health centers to ensure they received essential MCH services and followed them after delivery to ensure that they received post-partum services including PPFP.

The Research Design

This was a prospective quasi experimental study with 1 pre-test and 2 post-test time series household surveys conducted in both intervention and control sites. Data was collected at 3 time points; a baseline survey was used to collect baseline data in both intervention and control sites. First post intervention (midterm evaluation) survey data was collected in both intervention and control sites nine months after implementation of the CHS. Second post intervention (end-term) survey data was collected in both intervention and control sites 18 months after implementation of the CHS. Women of reproductive age with a child aged 9-12 months were main respondents. Each survey enrolled different participants. While women in

intervention site received MCH services under the CHS intervention, women in the control site received standard MCH care provided by Kitui County government.

Sample Size Determination

Fishers formula was used to calculate a representative sample size from a population of more than 10,000 households (Fisher, Laing & Stoeckel, 1998). After employing this formula, a representative sample size of 384 households was established. Thirty-eight households (10 percent of 384 households) were added into this sample in order to cater for non-response. A total sample size of 422 households was determined.

Sampling Procedure

Purposive and simple random sampling methods were employed where purposive sampling was used to identify intervention and control sites. Mwingi West Sub-County was purposively selected as intervention site based on the fact that the CHS program was implemented in the Sub-County. Mwingi north Sub-County was also purposively sampled as the control site because the intervention was not under implementation in the Sub-County, and the Sub-County borders Mwingi West Sub-County and was assumed to be homogenous to intervention site (County Government of Kitui, 2013).

Simple random sampling was applied in all the pre-and post-intervention surveys in the study and control sites. The first step was to develop a sampling frame. Households included in the sampling frame were only those with child/children aged between 9-12 months. Sampling frames in Mwingi west Sub-County was 1243, 927, and 1107 households in baseline, mid-term and end-term surveys respectively. In the control site, a sampling frame of 971, 1032, and 1208 households was developed in baseline, mid-term and end-term surveys respectively. Using SPSS, a sample size of 422 households was drawn from each sampling frame.

Data Collection Process

A pre-intervention survey was conducted to collect baseline data in both intervention and control sites. In the intervention site, baseline data was collected from a total 416 households while in the control site baseline data was also collected from a total of 411 households. Baseline survey was followed by two post intervention surveys in both intervention and control sites. Data for first post intervention survey (mid-term survey) was conducted 9 months (from March 2013 to June 2013) after implementation of the CHS in Mwingi west Sub-County. In the intervention site mid-term survey data was collected in 413 households in both intervention and control sites. The second post intervention survey took place 18 months (from March 2014 to June 2014) after implementation of the CHS. In this survey, data collection from 417 and 420 households in intervention and control sites respectively.

Validity and Reliability

A pilot study was conducted at Nzeluni in Mwingi west Sub-County before the main study. Data was collected in a randomly selected sample of 45 households (slightly above 10 per cent of the sample size) in three villages in Nzeluni Sub location. Upon testing the data for reliability, the coefficient of internal consistency (Cronbach's Alpha) was 0.864. This value was within the recommended range of 0.70-0.95 (Tavakol & Dennick, 2011) and therefore we were assured that the questionnaire was reliable. Internal validity of the study was ensured by applying a sound methodology while external validity was ensured by use of a representative sample size.

Data Analysis

To estimate net effect of CHS intervention on utilization of PPFP, Difference-in-Differences (DiD) model was used to compare the net changes in proportions indicating utilization of PPFP over 18 months implementation time between intervention and control groups in line with statistical methods proposed for quasi experiments (Memon, Khan, Soofi, Baig, & Bhutta, 2015) and (White & Sabarwal, 2014). Z score tests were used to determine if proportions of women utilizing modern PPFP method before and after the intervention were significantly different. Binary logistic regression was used to control for potential confounders (socio-demographic characteristics) and establish the probability that a mother will utilize a modern PPFP method in the intervention and control sites over the 18 months of the CHS intervention.

Ethical Considerations

Ethical clearance for this study was provided by the National Council of Science and Technology (NCST) of the Government of Kenya (GoK).

Findings

Effect of CHS on Use of Modern PPFP Methods in Mwingi West Sub-County

Change in proportion of women utilizing modern PPFP methods at 9-12 months' post-partum. Z score test analysis conducted to establish if there was a significant difference between proportions of women who used modern PPFP at 9-12 months PP established the following; In intervention site, proportion of women with need of FP who utilized modern PPFP increased from 51.5% at baseline to 57.9% at mid-term survey (data summarized in table 1). The 6.4% increment was however not significant ($Z=1.7976$, $P>0.05$). A comparison between proportion of women who used modern PPFP at intervention arm-baseline with women who used modern PPFP at intervention arm-end-term survey established a significant increment of 8.9% ($Z= 2.5135$, $P<0.05$).

In the control site, an increment of 3.2% and 1.8 % was observed on women who used modern PPFP between baseline and midterm surveys, and between baseline and end-term surveys respectively. Analysis using Z score tests revealed no significant difference between proportion of women who used modern PPFP at baseline and midterm surveys (Z=0.8932, P>0.05) and between baseline and end-term surveys (Z=0.5006, P>0.05). These results are summarized in the following table (Table 4).

Table 1

Z score Tests Indicating Effect of CHS on Utilization of PPFP in Intervention and Control

Study Site	Baseline	Mid Term	End Term	Mid Term Vs Baseline (Z Test)	End Term Baseline (Z Test)
Intervention Modern (Mwingi West)	51.5% (206/400)	57.9%	60.4% (232/384)	Z = 1.7976 P = 0.07186	Z = 2.5135 P = 0.01208*
Control Modern PPFP (Mwingi North)	49.1% (191/389)	49.1% (191/389)	50.9% (200/393)	Z = 0.8932 P = 0.37346	
Intervention Vs Control (Z tests)	Z-0.674 P=0.50286	Z = 1.5669 P = 0.11642	Z = 2.672 P = 0.00758*		

Net Change in Proportion of Women Utilizing Modern PPFP Methods between Intervention and Control Sites

DiD statistic. The net change/estimated impact of CHS on utilization of modern PPFP methods at 9-12 months PP in the intervention site compared to control site over the 18 months' CHS intervention period was calculated using the DiD model. Compared to control site, CHS intervention increased utilization of modern PPFP among Women with need for PPFP in Mwingi west Sub-County (intervention site) by 7.1% over the 18 months' implementation period.

Odds of Utilization of a Modern PPFP Method at Baseline Compared to End-term Survey

Binary logistic regression analysis revealed that in intervention site, women in end-term survey were 1.4 times more likely to use a modern PPFP at 9-12 months PP compared to women at baseline survey in the same site [Adj. OR=1.386, P<0.05; (95%CI: 1.164-1.651)]. The following table (Table 2) shows a comparative

summary of the odds of utilizing modern PPFP among women of reproductive age between baseline, midterm and end term surveys in both intervention and control sites.

Table 2

Odds of Utilizing Modern PPFP among Women in Intervention and Control Sites

Study Site	Surveys	Crude & Adjusted	Sig	OR	95% CL
Intervention Site (Mwingi West)	Mid-term Vs Baseline	Crude OR	0.174	1.208	0.920 – 1.587
		Adjusted OR	0.0001*	3.081	1.985 – 4.784
	End-term Vs Baseline (Hypothesis Test)	Crude OR	0.077	1.131	0.987 – 1.296
		Adjusted OR	0.0001*	1.386	1.164 – 1.651
Control Site (Mwingi North)	Mid-term Vs Baseline	Crude OR	0.363	1.135	0.864 – 1.492
		Adjusted OR	0.191	1.284	0.883 – 1.868
	End-term Vs Baseline	Crude OR	0.745	1.023	0.893 – 1.172
		Adjusted OR	0.881	1.014	0.849 – 1.210

Discussion

Key statistics which best provide evidence on effect of CHS on modern PPFP methods by women at 9-12 months PP in the intervention site (Mwingi West Sub-County) are the following: 1). An 8.9% significant increment in utilization of modern PPFP methods among women at 9-12 months Post-Partum (PP) in intervention arm. 2). the estimated impact of CHS intervention in intervention arm on utilization of modern PPFP methods among women at 9-12 months PP (the DiD statistic) estimated as 7.1%. This implies that compared to control site, CHS intervention increased the number of women utilizing modern PPFP methods by 7.1% in the intervention site over the 18 months' CHS implementation period. The last critical statistic is the OR derived from comparing the probability of utilizing a modern PPFP method by a woman at 9-12 months PP between intervention arm-baseline survey and intervention arm end-term survey. Women in intervention arm end-term survey were 1.4 times more likely to use a modern PPFP method at 9-12 months PP compared to women at intervention arm-baseline survey.

The significant increment in prevalence of women utilizing modern PPFP methods in intervention site compared to control, and the high probability of utilizing modern PPFP methods among postpartum women in intervention arm end-term survey compared to intervention arm baseline survey could be associated with the CHS intervention. This is based on the observation that, no significant difference between the prevalence of women utilizing modern PPFP methods was observed in

the control arm in end-term survey compared to baseline survey. The absence of significant differences between the compared groups in control arm in regard to utilization of modern PPFP methods and in particular the lack of any significant increment in the proportion of women utilizing modern PPFP methods in control arm end-term survey compared to control arm baseline survey could be accounted for by lack of CHS intervention in the control arm. This implies that, though CHWs working in the CHS intervention were not actively involved in distribution of FP commodities, their health education and counselling program which had a focus in promoting utilization of modern FP methods during and after postpartum period was effective in causing a significant increment in utilization of modern PPFP methods among women at 9-12 months PP in the intervention site. This in turn helped in reducing the unmet need of PPFP.

Previous studies have shown that integrating PPFP with other provider led MCH services such as integrating PPFP with health provider led ANC service, and integrating PPFP with provider led infant vaccination services has worked before in some countries like in India (Achyut *et al.,* 2015) and Liberia (Cooper *et al.,* 2015) respectively. However, studies involving CHWs in promoting modern PPFP methods are scarce and hence few studies do support the findings in this study. A quasi-experiment conducted in Bangladesh to establish if integrating PPFP promotion in a Community-Based Maternal and Newborn Health (MNH) Program was effective in promoting PPFP established that, the CHW led intervention was effective in promoting use of modern methods in PPFP among women at 36 months PP (Ahmed *et al.,* 2015).

Another intervention implemented in Uganda provided contrasting results. In the intervention CHWs were employed to provide counselling on postpartum family planning use among early postpartum women in Masindi and Kiryandongo Districts. Assessment on effectiveness of the intervention in promoting PPFP indicated no significant difference in modern postpartum contraceptive use between intervention and control sites (Ayiasi, Muhumuza, Bukenya, & Orach, 2015).

With such a contradicting finding, it is important to conduct more studies to investigate the effect of employing CHWs in promotion of modern PPFP. Though this study showed a significant improvement in use of modern PPFP in Mwingi West Sub-County, there is need to further test the effect of CHS intervention in promoting use of modern PPFP. As indicated before, CHWs working in the CHS intervention were not supplying any FP commodities in the intervention site. The intervention focused in raising awareness through health education and counselling on importance of modern PPFP methods. It will be important to explore the effect of CHS on utilization of modern PPFP when the CHS intervention has been redesigned to provide subsidized modern FP products and FP services. Perhaps cost of FP products and FP services could be a barrier influencing access and utilization of modern PPFP methods in Mwingi West Sub-County. Providing free/Subsidized modern FP commodities and Subsidized FP services to community members in Mwingi West Sub-County could probably increase number of women utilizing modern PPFP methods in the Sub-County.

Conclusion and Recommendations

In the intervention site (Mwingi West Sub-County), CHS increased utilization of modern PPFP methods among women at 9-12 moths PP in intervention arm end term survey compared to intervention arm baseline survey. No significant difference in use of modern PPFP among women at 9-12 months PP was observed between control arms (Mwingi North Sub-County) end term survey compared to control arm baseline survey. To increase utilization of modern PPFP methods in Kenya and help reduce the proportion of women with unmet need of PPFP, county governments across Kenya need to support CHW led interventions especially those which provide MCH education and counselling to new mothers on importance of modern PPFP methods. We also recommend scaling up of the CHS intervention in areas where it has not yet been implemented. Those measures will help in reducing the high maternal and child mortality rates in Kenya.

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