

INFLUENCE OF PROVISION OF OFSP VINES TO PREGNANT WOMEN ON COMPLETION OF ANC VISITS IN HEALTH FACILITIES IN RACHUONYO SOUTH SUB- CITY, KENYA

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ABSTRACT

Rural women do not seriously consider antenatal care yet it is a prerequisite for safe motherhood. In anticipation of encouraging ANC practice among the pregnant women, most healthcare facilities in Rachuonyo South sub-county are giving expectant mothers during their prenatal visits, Lactating women and children under five years vouchers Orange Fleshed Sweet Potatoes (OFSP) vines to grow their own tubers for nutrition purposes. The purpose of the study is to investigate the effects of provision of orange-fleshed sweet potato (OFSP) vines on antenatal care visits among women visiting health facilities in Rachuonyo South sub-county, Homabay count, Kenya. The study used causal-comparative design otherwise known as Ex post facto design. The sample size was 132 women receiving or have received Orange fleshed sweet potatoes during their ANC visits at the public health facilities in Rachuonyo south sub-county. The researcher used questionnaires, interviews schedules and observation checklist to collect qualitative data. The data was analyzed using descriptive statistics using SPSS version 22. The study found that provision of OFSP encouraged the number of pregnant women attending the ANC clinic. Majority of the pregnant mothers had not skipped the ANC visit, implying that pregnant mothers of Rachuonyo South had good adherence to ANC practices. Most of the

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pregnant women receiving the OFSP had higher frequency of ANC visit. The study concluded high frequency of ANC visits was influenced by the provision of the OFSP at the health facility. The study recommended that the program of provision of OFSP should be rolled out in all the public health care facilities across the county to encourage ANC visit among the pregnant women. Healthcare policy makers should design policies that encourage adequate OFSP in all public health facilities offering ANC services. The ministry of agriculture and the policy makers in the ministry of health should design strategies that would encourage planting of this crop at the household level so that it can benefit all the households.

***Key words:** *ANC visit, Pregnant Women, Orange Fleshed Sweet Potatoes*

1. Introduction

Antenatal care refers to the interventions to curb maternal and infant mortality. It is a planned program of medical management of pregnant women directed towards; making pregnancy and labor a safe and satisfying experience (MOH 2006). Antenatal care is concerned mainly with prevention, early diagnosis and treatment of general medical and pregnancy associated disorders. Antenatal care evolved over a period of about a century, with the trend changing gradually from in-patient to out-patient form of care that takes place today. The provision of special care for women during pregnancy through the public health services was a relatively late development in modern obstetrics (WHO & UNICEF, 2001). This form of care for pregnant women has become an important pillar in the safe motherhood program, as the aim is to improve the outcome of pregnancy for both the mother and the fetus.

Pregnancy is a crucial time to promote health behaviors, prevent still births and avoid some of the major causes of illness among new borns. Essential interventions during the pregnancy period are provided through the ANC package, including, TT immunization, identification and management of STIs, including HIV and syphilis, malaria prevention through IPTp, ITN and treatment, identification and management of pregnancy complications such as anemia, nutrition, counseling, preparedness and counseling on maternal and new born danger signs.

The immediate cause of pregnancy-related complications, ill-health and death are inadequate care of mother during pregnancy and delivery. More detailed factors include women's subordinate status, poor health and inadequate nutrition. The health of pregnant women through effective antenatal care increases a mother's chances of giving birth to a healthy baby. While any woman can develop complications during pregnancy and delivery, many such complications can be prevented or treated before becoming life-threatening emergencies and all can be managed by appropriately trained and equipped health care providers. However surveys had shown countries like Bangladesh, Ethiopia, Morocco, Nepal and Yemen have relatively high percentages of women who received only one antenatal. Globally, approximately 536,000 women die from complications related to pregnancy and childbirth, with 99% of these deaths occurring in Africa and Asia.

Although every mother looks forward to holding her baby in her arms after nine long months, this is not usually the case for women in rural areas. Rural women do not seriously consider antenatal care yet it is a prerequisite for safe motherhood. The Health Sector Strategic Plan phase 11 (HSSP II) also recognizes the importance of strengthening the health system at each tier. This includes increasing demand at the community level implementing outreach antenatal and postnatal packages and providing sophisticated clinical care at higher level health facilities. In Nepal, there has been a shift of paradigm when it comes to access of antenatal care by a pregnant mothers and delivery of the same by a trained birth attendant. Contrary to the traditional aspect, where children were born in an unhealthy environment. Although there is little evidence that antenatal care prevents maternal mortality, the potential of antenatal care for reducing maternal morbidity and improving newborn survival has been widely acknowledged.

Public health efforts in Uganda have focused on increasing attendance at delivery by a skilled health care provider, frequently by a nurse midwife. Many of these providers are trained in the Active Management of the Third Stage of Labor program, a set of recommendations to prevent postpartum hemorrhage which remains the leading cause of maternal mortality resulting in 36% of deaths. Particularly in the rural areas of Uganda encouraging women to give birth with a trained and skilled birth attendant remains a challenge, with the overall percentage of attended births having only increased slightly from 38% in 1999 to 62% in 2014, and with women in the

top quintile of household income more than twice as likely to have a skilled provider present at delivery than women in the bottom quintile.

Early and regular prenatal care can increase the chances of having a healthy baby. However, many women begin prenatal care late in the pregnancy or do not attend all of their scheduled visits. This can make it difficult for providers to help avert problems in pregnancy. In an effort to encourage pregnant women to begin prenatal care early in the pregnancy and to attend all of their visits, some health systems and providers offer incentives to patients to attend prenatal care. Some of these incentives include but not limited to provision of orange fleshed sweet potatoes to pregnant mothers during their ANC visits.

Orange Fleshed Sweet Potatoes (OFSP) (*Ipomea batatas [L.] Lam*) is a warm season tropical tuber crop which is globally the second most economically important tuber after Irish potato and is an important food crop in Sub-Saharan Africa (Mukunyadzi, 2009). OFSP is a bio-fortified crop, in that it is a staple food whose micronutrient content has been enhanced to the point where impact on micronutrient status can be achieved (Bouis, 2002). In De Schutter's special rapporteur's report on the right to food (2011), submitted to the Human Rights Council of the United Nations General Assembly, he addressed the link between health and nutrition. The report stated that "biofortification" the improvement at crop level of the micronutrient content of staples can provide important benefits for rural populations especially the pregnant mothers, improving their access to micronutrient-rich foods produced locally at more affordable prices. It has the third greatest production level after cassava and yams and is amongst the widely grown tuber crops by small scale farmers in Sub-Saharan Africa (Kaguongo *et al.*, 2010). It is an important food crop for pregnant mothers because of its rich in vitamin A.

Pregnant mothers would need more nutrients for the growth of the fetus and the mother's own health. OFSP in this case contain a compound called beta-carotene, which is a provitamin A and is converted by the body into vitamin A. There are many benefits of OFSP if consumed by pregnant women, especially to meet the needs vitamin A for good vision for the development of the fetus and the mother's own. Vitamin A, a fat-soluble vitamin, and beta carotene, which can be used in the body as either an antioxidant or a precursor to vitamin A, are critical during fetal

development because of their involvement in growth, vision, protein synthesis, and cell differentiation.

Despite the important role vitamin A plays in the body, the RDA for pregnant women of g/day is only slightly higher than the RDA for non-pregnant women. This is due to the high risk of birth defects associated with excessive doses of preformed vitamin A early in pregnancy (Miller et al., 1998). Although it is unlikely that the mother-to-be will over consume vitamin A from food sources alone, close attention should be paid to choosing a prenatal vitamin supplement that contains no more than the usual RDA for vitamin A. To minimize risks associated with excess intake, a significant percentage of the vitamin A content in the supplement should come from beta carotene instead of providing it all as preformed vitamin A (Strobel et al., 2007). Beta carotene is not converted to vitamin A unless the body determines the need, and thus it is a safer form to consume.

A study in Malawi by Low *et al.* (2007) has recorded that the role of OFSP is becoming more important and substantial, as the government has recognized its significant potential to contribute to immunization against anemia among expectant mothers and children. This implies that OFSP can contribute to combating vitamin A deficiency (VAD) and can also serve as a wheat flour substitute in processed products. In addition, Low *et al.* (2007) reported that promotion of OFSP in Mozambique reduced VAD significantly at the community level.

In many parts of Eastern Africa there is sufficient per capita production of sweet potato to be optimistic about the potential of orange-fleshed varieties to leverage positive nutritional outcomes by replacing the white-fleshed materials presently grown by farmers (Low, et al, 1997; Hagenimana et al, 1999). An 18-month village-level pilot study undertaken in western Kenya confirmed that potential exists to successfully substitute white-fleshed sweet potatoes for β -carotene-rich sweet potatoes-OFSP in the diets of pregnant, lactating and young children. This study also suggests that increasing OFSP production across seasons of the year will be more effective in improving nutritional status of the expectant mothers and children.

Integrating OFSP into an existing health service delivery program in Kenya is a welcomed idea to improve the health status of pregnant women and the nutritional status of children up to five yrs. In Rachuonyo South sub-county, health care facilities are providing orange-fleshed sweet potato (OFSP) to pregnant mothers during their ANC visits ,lactating women and children under five years with vines to grow and consume to get vitamin A. However, there is no empirical evidence how provision of OFSP have improved the maternal health and health service utilization such as ANC services, especially among the pregnant women in this area. The present study seeks to investigate the effects of provision of orange-fleshed sweet potato (OFSP) on antenatal care visits in health facilities in Rachuonyo South sub-county, Kenya.

ii. STATEMENT OF THE PROBLEM

Globally, approximately 536,000 women die from complications related to pregnancy and childbirth, with 99% of these deaths occurring in Africa and Asia. Estimated 6300 (58%) women die due to pregnancy related conditions in Kenya, while in Homabay 583 women die per every 100,000 live birth. Use of antenatal care and skilled deliveries is low in Homa Bay County as a whole, estimated at 31% for ANC attendance and 41% for uptake of skilled deliveries. Many women first seek antenatal care during late pregnancy, and almost half have only one visit during the antenatal period (NASCOP fact sheet 2013). According to recently released report by the Kenya Demographic Health Survey KDHS, on the number of pregnancy cases in the sub-county, the report shows that more than 37% of the pregnant women are not accessing ANC services (Kenya National Bureau of Statistics (KNBS) and ICF Macro 2014). Similarly, according to the report of Kenya AIDS Indicator Survey (KAIS) (2014) in this region women aged 15-54 years who reported a live birth within the past five years (2010- 2014), 32% attended an antenatal clinic (ANC) during their pregnancy. In anticipation of encouraging ANC practice among the pregnant mothers, most healthcare facilities in Rachuonyo South sub-county give orange-fleshed sweet potato vines to expectant women during their prenatal visits, so that the number of ANC attendance among the pregnant women would increase as well as uptake of skilled deliveries. It is evident that pregnant women realized the benefits of OFSP, which not only revolved around ANC and uptake of skilled deliveries but also health benefits and therefore the need to pick coupons from the health facility every three months to be able to pick the vines from the designated farmers within their CUs. It is through this that the health facilities are able to reach

them with the ANC services, since it is a rule that when they are picking the coupons they register with their mother child health booklet so through this the health care workers are able to identify any missed opportunities. Although majority of pregnant women are upbeat about this measure, there is no empirical evidence the contribution of provision of OFSP and utilization of ANC services among pregnant women. The present study therefore, sought to investigate the effects of provision of orange-fleshed sweet potato (OFSP) on antenatal care visits, in health facilities in Rachuonyo South sub-county, Kenya.

iii. RESEARCH OBJECTIVE

The main aim of the study was to assess the influence provision of OFSP vines to pregnant women on ANC visits in health facilities in Rachuonyo South sub-county, Kenya.

iv. SPECIFIC OBJECTIVES

The following specific research objective was

To assess the influence provision of OFSP vines to pregnant women on completion of ANC visits in health facilities in Rachuonyo South sub-county, Kenya.

v. THEORETICAL FRAMEWORK

This study is based on health belief model as postulated by Janz, and Becker (1984). The Health Belief Model is a theoretical framework used to understand health behavior and possible reasons for non compliance with recommended health action. According to the above frame work, there are several factors that influence utilization of antenatal services of which all are interrelated. The framework addresses major components for compliance with recommended health action; perceived barriers of recommended health action, perceived benefits, perceived susceptibility, perceived severity and cues to action.

According to the HBM women are most likely to make decision to seek ANC services when they perceive complication with the pregnancy and are less to seek ANC if they believe that the complication is minor. This is closely linked to the inability to appreciate danger signs of pregnancy, delivery and postpartum due to inadequate knowledge. The model further illustrates the inability of pregnant women with labor complications to access available health facilities

when need arises. This is due to lack of inadequate community support, timely means of transport or resources to pay for it, long distances poor roads and communication while poverty at household level also limits decision making to seek health care.

The model indicates that Initial access /personal factors, awareness and acceptance of pregnancy can affect utilization of ANC thus the ability of rural women to first identify and then accept their pregnancy. Young women are likely to delay ANC until late in second trimester because they are not aware of the typically indicators of pregnancy. The recognition of unplanned pregnancy can be devastating, fears relating to parental and partner disapproval and concerns about being stigmatized by peer group members can lead to delaying accessing ANC.

In addition, some cultural practices restrict women from seeking health care, reliance on traditional and cultural beliefs among some women who seek advice and support from community elders than health professionals. Initial and sustaining access may lead to delayed and failure to seek ANC services. Social factors personal costs incurred by travelling to and from the health facility may put a strain on the limited resources of women from rural areas. This may diminish the potential of women to access ANC early and regularly.

Need to value women's time. Some women find themselves frustrated by the time they spend at the health facilities waiting for consultation. In many cases this has demeritental effects on future visits. Sustaining access, provision of care and routine nature of ANC appointments may leave many women feeling disrespected. When health professionals become more focused on the task other than interacting with women in their care, the inclination to return for future appointments may diminish.

Need for staff credibility and excellent communication/interpersonal skills. Some women from the rural areas may find it difficult to accept ANC advice from midwives who have never experienced a pregnancy. Rudeness, harshness, insensitivity, impoliteness expressed by some staff members may discourage ANC attendance during current pregnancy and more importantly curtail any further involvement in ANC services during subsequent pregnancies. The HBM has the likelihood of seeking care, psychosocial and social demographic modifiers, and perceived

benefits, minus perceived barriers, perceived susceptibility, perceived severity, perceived need and cues to action. The diagrammatical representation of the model is as shown in Figure 1

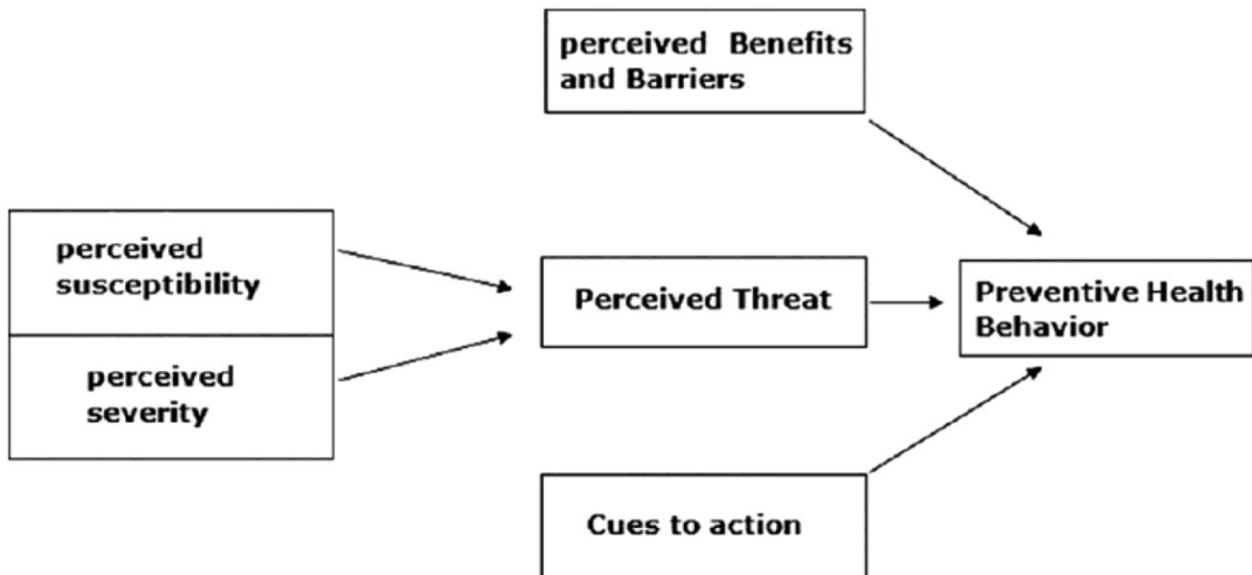


Figure 1 Health Belief Model

Source: Stretcher, V, & Rosenstock I.M. (1997). The Health Belief Model in Glanz K., Lewis F.M., & Rimer B.K., (Eds)

2. RESEARCH DESIGN AND METHODOLOGY

i. RESEARCH DESIGN

According to Kothari (2004), research design is a plan, a roadmap and blueprint strategy of investigation conceived so as to obtain answers to research questions. This study has used descriptive study design with both qualitative and quantitative approach. This study design enables one to obtain information about the situation at hand at one specific time and shows the current situation of the condition under study in the desired population. It is used in preliminary and exploratory studies to allow one to gather information, summarize, present and interpret for the purpose of clarification (Orodho, 2004).

The study also used causal-comparative design otherwise known as Ex post facto design. Ex post facto design is defined as where an independent variable(s) had already occurred and the researcher started with observation of a dependent variable(s), and then studied the independent variable in retrospect for possible relations to and effects on the dependent variable or variables

(Kerlinger, 1964; Tuckman, 1978 Kerlinger and Ront, 1986; Kerlinger, 1986; Cohen, Manion and Morrison, 2000; Oso and Onen, 2009). Ex post facto design discovered a functional rather than causal relationship (Lord, 1973) this design was suited for this study because the independent variables, provision of orange fleshed sweet potatoes vines had already occurred and would not be randomized, manipulated and controlled for research purposes.

The nature of the study which focused on antenatal care practices as antenatal care visits, skilled deliveries and health benefit is impractical, costly or ethically questionable to carry out in any other design apart from ex post facto. These variables, antenatal care visits, skilled deliveries and health benefit (dependent variables) were therefore traced backwards. This ex post facto design entailed an explanatory, exploratory and embedded form and also provides a means of tackling research problems not possible in laboratory and expected to yield valuable clues concerning the nature of phenomena in terms of what goes with what, under what conditions, in what sequences and patterns.

ii. SAMPLE AND SAMPLING TECHNIQUES

SAMPLE SIZE

The sample size was determined using the Krejcie and Morgan (1970) table which allows a sample of 132 to be a representative sample of the targeted 200 accessible population of mothers attending ANC at the public health facilities and are receiving OFSP vines in Rachuonyo South sub-county. This group was selected through purposive sampling due to the desired characteristics they possess for the study. As for the clinical officers, 10 out of 15 working in public health facilities in Rachuonyo South sub-county was also selected purposively to participate in the study as key informants as they participated during the program and knew what the program was doing.

SAMPLING TECHNIQUE

Sampling is that part of statistical practice concerned with the selection of individual observations intended to yield some knowledge about a population of concern, especially for the purposes of statistical inference (Brook, 2013; Orodho, 2009). Orodho, (2012) further argues that the sample size depends on what one wants to know, the purpose of inquiry, what is at stake,

what was useful, what had credibility and what can be done with time and resources. In this study, participants in the study were identified using the systematic sampling procedure. A list of pregnant mothers attending the antenatal clinics in all the 27 health facilities was generated. A population proportional to size method was used to identify the number of participants from each health facility. The n^{th} principle was used to identify the participants for the study in each facility.

iii. DATA ANALYSIS

Orodho, (2004) defines data analysis as the process of evaluating data using analytical and logical reasoning to address the variables identified for the study and tests the stated research hypotheses. The data was analyzed using both descriptive statistics. The descriptive statistics was used to describe and summarize the data in form of frequency distribution tables and mean. The statistical package for social sciences (SPSS) version 22 was used to analyze the data. Qualitative data was put into themes and reported in a narrative form.

3. RESULTS FINDINGS AND DISCUSSIONS

Influence of OFSP to Pregnant Women, Number on Women who Came Because of the Provision

Skipped any ANC Visit

Respondents were asked to indicate whether they had skipped the ANC visit since they became pregnant with the current pregnancy. Figure 1 shows the response.

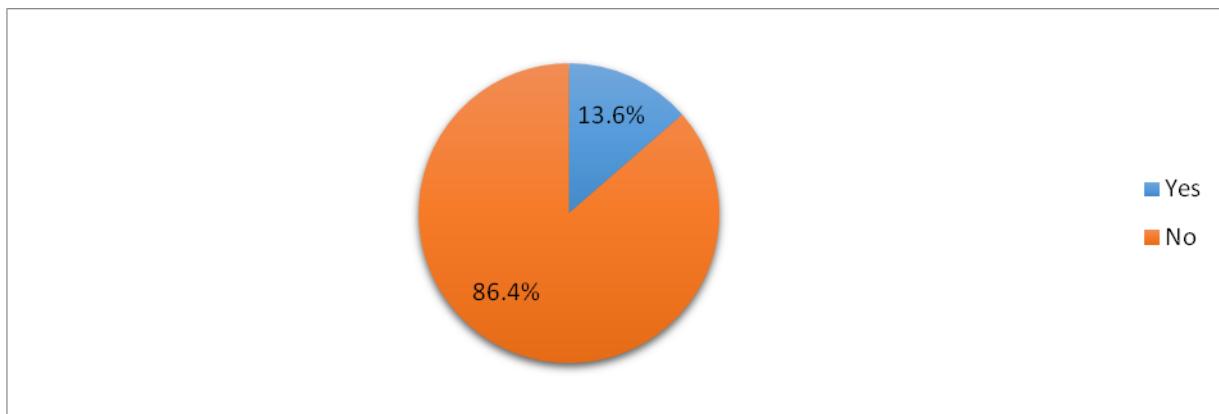


Figure 1 Skipped any ANC Visit

Majority of the respondents at 86.4% had not skipped the ANC visit, while only 13.6% had done so. This shows that pregnant mothers of Rachuonyo South had good adherence to ANC practices. In line with this finding, Sunil et al. (2010:138) also stated that women who had wanted pregnancies had a 50 per cent or lower risk of starting ANC late in their pregnancies. Planned pregnancy was found to be a predictor of utilization of ANC services. In their study, the researchers found that women whose current pregnancies were planned were more likely to use ANC services than women who had unplanned pregnancies. Moreover, Myer & Harrison (2003) found that given that Antenatal care services for pregnant women are free in South Africa at public health facilities, most women access ANC services during pregnancy and even go for return visits. Results of a descriptive study carried out in Durban by Myer & Harrison (2003) showed that most of the women in the study initiated ANC early (after 5 weeks of pregnancy) and that women are upbeat about ANC services.

Rating the Frequency of your ANC Visit to the Health Facility

Respondents were also asked to rate the frequency of their ANC visit to the health facility. Results were as shown in Figure 2.

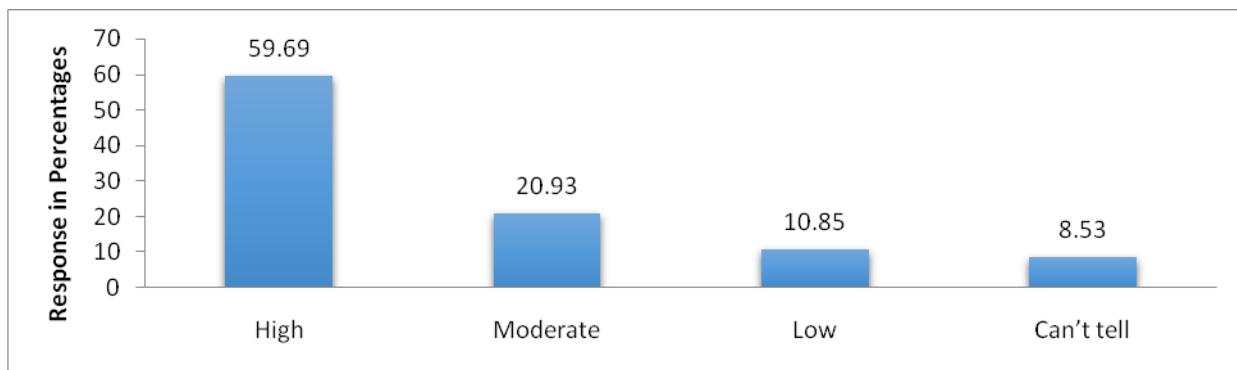


Figure 2 Rating the Frequency of your ANC Visit to the Health Facility

In rating the frequency of ANC visit among the pregnancies, the study found that most of the pregnant women receiving the OFSP rated their visit as high as shown by 59.69%, 20.93% indicated moderate, while only 10.85% rated low, as 8.53% could not tell. This shows that uptake of ANC services among the pregnant women in Rachuonyo South was high. Similarly, through observing the existing data from ANC register, the study found that comparatively, the number of ANC visit had increased significantly after the provision of OFSP, in all the ANC visit category.

Influence of Provision of OFSP Vines at the Facility on the Number of ANC Visit

Respondents were also asked whether provision of OFSP vines at the facility would influence the number of frequency of ANC visit. Figure 3 shows the results.

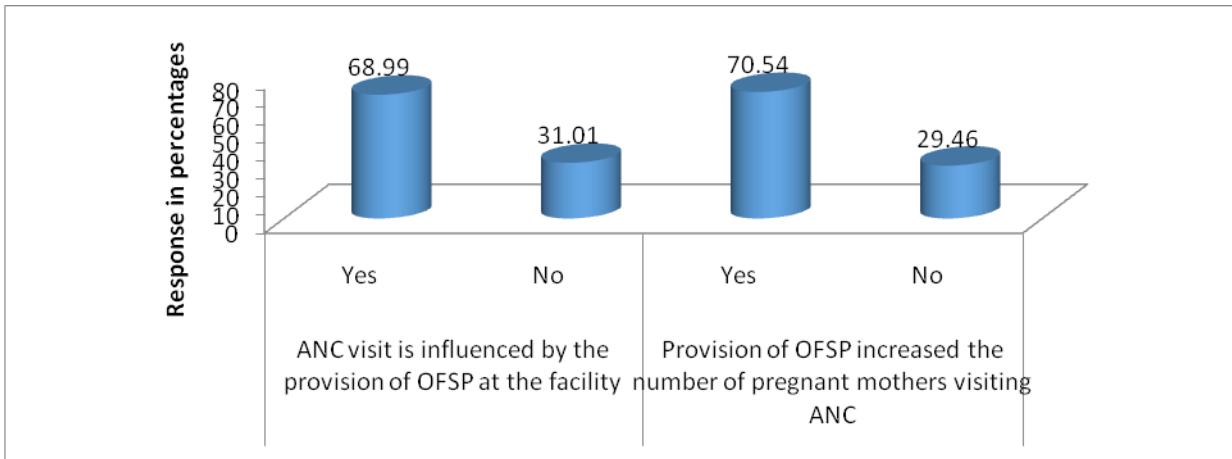


Figure 3 Influence of Provision of OFSP Vines at the Facility on the Number of ANC Visit

According to the study findings, of the 129 respondents that answered this question, the study found that over two thirds of the respondents at 68.99% confirmed that their frequencies of ANC visit would be influenced by the provision of the OFSP vines at the health facility. Only 31.01% indicated otherwise. In fact, majority of the respondents at 70.54% agreed that provision of OFSP vines increased the number of pregnant mothers visiting the ANC. This shows that provision of OFSP not only boosted the ANC visit among the mothers but also encouraged many pregnant mothers to visit the clinic. This finding concur with that of Hossain (2010:402) who also revealed that the proportion of women who were informed about pregnancy-related complications was very low (38%) because of poor attendance of ANC services. Therefore, the policy makers in the health department of this country devised many methods of encouraging the ANC visits up to including provision of different incentives such as food to the pregnant mothers visiting the clinic.

Number of Women who Complete 2nd, 3rd and 4th ANC Visits (through three trimesters)

Respondents were also asked to indicate the number of their ANC visits through three trimesters they had completed or they were in. Table 2 shows their response.

Table 1 Number of mothers who complete 2nd, 3rd and 4th ANC visits (through three trimesters)

ANC visit	Frequency	Percentages
Second visits	20	15.50
Third visits	33	25.58
Fourth visits	67	51.94
Don't know	9	6.98

The study found that most of the respondents at 51.94% were in their forth ANC visit, 25.58% indicated third, while 15.50% were in their second visit. Only 6.98% did not know which level of ANC visit they were in or had completed. This shows that over half of the respondents were knowledgeable about their ANC visit and had either completed their forth ANC visit or were in the forth ANC visit. Similarly, Zhao, Kulane, Gao & Xu (2009) in investigating women's knowledge of ANC, questioned women on complications that may occur during pregnancy and the benefits of ANC. The results revealed that sufficient knowledge of the benefits of ANC and of the complications associated with pregnancy plays an important role in the utilization of ANC services. Being knowledgeable about ANC was associated with higher utilization of ANC services, as more knowledgeable women were 6.5 times (95% CI = 2.4–17.6) more likely to utilize ANC services than those who had poor knowledge.

Provision of OFSP and Completion of ANC Visits

The study also sought to find out whether completion of ANC visits was influenced by the provision of OFSP at the facility. Figure 4 shows the response

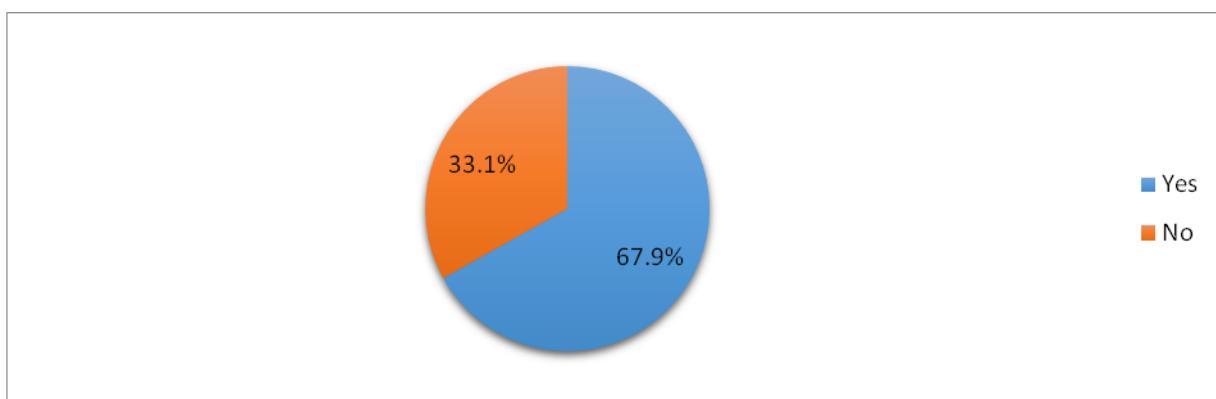


Figure 4: Provision of OFSP and Completion of ANC Visits

The study found that over two thirds of the respondents at 67.9% concurred with the statement that provision of OFSP at the health facility encouraged them to complete ANC visits. Only 33.1% indicated otherwise.

Table 2 Comparative analysis of ANC visit before and after provision of OFSP

	Before provision of OFSP	After provision of OFSP
1 st Trimester	14	87
2 nd Trimester	26	118
3 rd Trimester	31	133
4 th Trimester	44	168

Source: ANC register in public health facilities in Rachuonyo South Sub County

According to the study findings, the number of pregnant mothers visiting for the ANC clinic in all the trimesters before the provision of the OFSP was comparatively small than those visiting after the provision OFSP.

CONCLUSION

The first study objective was to assess the influence of OFSP to pregnant mothers on ANC attendance. Based on this objective, major conclusions drawn were that majority of the pregnant mothers had not skipped the ANC visit, implying that pregnant mothers of Rachuonyo South had good adherence to ANC practices. In rating the frequency of ANC visit among the pregnancies, most of the pregnant women receiving the OFSP rated their visit as high, showing that the uptake of ANC services among the pregnant women in Rachuonyo South was high. On the influence of provision of OFSP at the facility on the number of ANC visit, the study concluded that most of the pregnant mothers ANC visit would be influenced by the provision of the OFSP at the health facility. In fact, majority of the respondents agreed that provision of OFSP increased the number of pregnant mothers visiting the ANC. This shows that provision of OFSP not only boosted the ANC visit among the mothers but also encouraged many pregnant mothers to visit the clinic.

RECOMMENDATIONS

The study found that provision of OFSP influenced positively the ANC attendance and completion of the 4th ANC visits among the pregnant mothers. Therefore, the study recommends

that the program of provision of OFSP should be rolled out in all the public health care facilities across the country, where pregnant mothers are getting their ANC services. Policy makers should also design adequate guiding principles where OFSP are available in all the healthcare facilities for sufficient provision to pregnant mothers. This will encourage more pregnant women visiting the healthcare facilities for ANC services and also promote skilled deliveries in the facilities. Whereas nearly 90% of pregnant women make an antenatal care visit, significant number still do not benefit from the trained skilled birth attendants during childbirth. As a result, the Health Sector Strategic Plan should encouraged the training of the community level providers like the traditional birth attendants and contraceptive distribution agents to improve on the services provided at the community level.

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