KNOWLEDGE AND ATTITUDE OF WOMEN UTILIZING FOCUSED ANTENATAL CARE AND MATERNAL COMPLICATIONS IN PUBLIC COUNTY HOSPITALS IN NAIROBI COUNTY, KENYA

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ABSTRACT

Introduction: Focused Antenatal Care is antenatal care that provides individualized counseling, targeted assessment and provides safe, cost effective, and evidence-based intervention.

Aim: This study aimed at investigating the knowledge and attitude of women utilizing Focused Antenatal Care associated with maternal complications in selected public county hospitals in Nairobi City County, Kenya.

Methodology: This was a cross-sectional study design. A sample of 397 postnatal women interviewed for the study. Kenyatta University Ethics and Review Committee (KUERC) approved the study and the National Commission issued the permit for Science, Technology and Innovation (NACOSTI). Permission to collect data obtained from the participating hospitals. Quantitative data was analyzed using Statistical Package for Social Sciences (Version 22.0) Inferential statistics were done using Chi Square tests to determine the association between study variables at 95% confidence interval ($p<0.05$).

Results: The study results revealed that 30% of respondents reported to have encountered a maternal complication during their current delivery outcome. The study results further revealed that 54.7% of respondents had high knowledge levels with 63.7% having positive attitude towards FANC utilization. Knowledge level was significantly associated ($p=0.017$) with maternal complications among respondents.

Conclusion: The study concludes that the respondents from Nairobi City County had relatively low maternal complications. The respondents further had high knowledge levels and positive attitude towards FANC utilization.

Recommendation: Scaling up male sensitization and awareness programs towards improved transfer of correct knowledge on FANC thus signify importance of seeking such services while pregnant.

Keywords: Antenatal Care, maternal complications

INTRODUCTION

Reduction of maternal and neonatal mortality remains a major challenge to attaining global social and economic development. There is a global reduction in maternal mortality ratio (MMR) (1). Maternal mortality ratio (MMR) in Sub- Saharan Africa is still high despite the strategies and interventions (1). Maternal mortality is still a huge public health problem as 99% of all maternal mortality rates occur in developing countries. The rate of MMR in developing countries stands at 239 per 100,000 live births and 12 per 100 000 live births in developed countries in 2015 (2).

The estimated maternal mortality rate was 686 per 100,000 live births in 2015 in sub-Saharan Africa (3). The United Nation Sustainable Development Goals (SDG) goal number 3 and target number one aims at improving maternal health by reducing maternal mortality ratio to less than 70/100,000 live births (3). It was expected that the goal be achieved

by an annual decline of maternal mortality by 5.5% antenatal deaths and childbirth and this fell by 1.7% between 1990 and 2015 (2).

Argentina, Saudi Arabia, Cuba and Thailand conducted a trial, which provided the safety of FANC and the way it could provide effective antenatal care, which was sustainable and comprehensive (4). World Health Organization (WHO) in 2001 introduced Focused Antenatal Care, in developing countries to address maternal mortality and gave direction on the implementation of the new ANC model. This model required that the pregnant woman would attend ANC four times during the pregnancy (5). The Focused visits were to help in improving the maternal and neonatal outcomes.

Death related to maternal and perinatal period occur to women who have not received any antenatal care. Access to ANC in low resource countries is at 70% and 95% in the industrialized countries (3). Focused antenatal care (FANC) was introduced in Kenyan antenatal clinic so that the monitoring of complications of pregnancy was identified and mothers referred appropriately (6). Focused antenatal care is targeted to optimize antenatal visits for the low resource countries, where the caregiver and the mothers should be able to optimize the visits (7). The limited number of ANC visits is because of the cost and other barriers to ANC access and thus the 4 FANC visit model (5).

Pregnant women in Kenya underutilize antenatal care services (6). They make their first visit in their second trimester of pregnancy and hardly attend the four recommended FANC appointments (8). About 90% of the pregnant women attend the first visit and this keeps on reducing in the second, third and fourth visit (8). The study investigated the attitude and knowledge of women utilization of FANC and the maternal complications in public county hospitals in Nairobi, Kenya.

METHODOLOGY

Setting: The selected public hospitals in Nairobi were, Pumwani Maternity Hospital, Mbagathi Hospital and Mama Lucy Kibaki Hospital. This was cross sectional study where quantitative data was collected using questionnaires aimed at addressing the objectives of the study. The study conducted between Jan-Feb 2019.

Eligibility criteria: The study population comprised of 397 women who have delivered and in their postnatal period after delivery and discharge from the facility and had attended all the 4 recommended visits their antenatal clinic from the first trimester of pregnancy in the selected county hospitals. The study excluded women who attend clinic in other facilities and women who did not consent. Pretesting of the tool was at Kenyatta National Hospital.

Sample size determination: The sample size was determined using Cochran formula (9) since the population was more than 10,000, a sample size of 384 was determined and 10% non-response included thus 422 respondents sampled.

Data collection: Duly filled and returned questionnaires considered for analysis. After data checking and cleaning, 397 questionnaires were deemed fit for analysis representing a response rate of 94.1%. The returned rate superseded the minimum sample of 384 respondents making it adequate for this study. Trained research assistants collected the data. The questionnaire comprised of three section. The women responded section 1 and 2 while section 3 information sought from the patients' records. The questionnaires were in the English language and well understood by the research assistants.

Data analysis: Analysis done using statistical package for social sciences (SPSS) version 22.0. Data analysis achieved using appropriate statistical tests, which included descriptive statistics to yield the frequencies and percentages while inferential statistics calculated using chi square tests to establish the association between variables. A 95% confidence intervals and results with p-values of less than 0.05 considered significant.

Ethical consideration: Informed consent sought from study respondents, which involved consent form and participant's role explanation. Confidentially of study participants was maintained throughout the study by women being interviewed in a room and the data kept by the researcher in a looked cupboard. No names but numbers identified them.

Prior to the study ethical approval was sought from Kenyatta University Ethics and Review Committee (KUERC). Research permit was sort from the National Commission for Science, Technology and Innovation (NACOSTI).

RESULTS

After data checking and cleaning,397 questionnaires were deemed fit for analysis representing a response rate of 94.1%. The returned rate superseded the minimum sample of 384 respondents making it adequate for this study.

Socio-demographic characteristics of respondents

The results showed that the respondents were at least 15 years of age. Slightly more than half 204 (51.4%) of the respondents were aged between 20-29 years followed by 118 (29.7%) who were aged between 30-39 years. Regarding the respondents' marital status, majority of them 243 (61.2%) were married while 113 (28.5%) reported to be single. Small number of the respondents 23 (5.8%) and 18 (4.5%) reported to have been widowed and divorced/separated respectively.

Concerning highest level of education attained, slightly more than half of the respondents 207 (52.1%) reported that secondary education was their highest educational level while 108 (27.2%) had tertiary education.

The results presented in table 1 below.

Table 1: Socio-demographic characteristics of the respondents (n=397)

Independent variable	Respondent response	Frequency (N)	Percentage (%)
Age	15-19	50	12.6
	20-29	204	51.4
	30-39	118	29.7
	40-49	25	6.3
Marital status	Single	113	28.5
	Married	243	61.2
	Widowed	23	5.8
	Divorced/ Separated	18	4.5
Level of education	No formal education	18	4.5
	Primary	64	16.1
	Secondary	207	52.1
	Tertiary	108	27.2

Maternal complications

Presence of maternal complications

This section consists of whether the respondents reported any maternal complications. The results revealed that majority 278 (70%) of the respondents did not report any maternal complication while 119 (30%) reported they had complications. The results presented in figure 1.

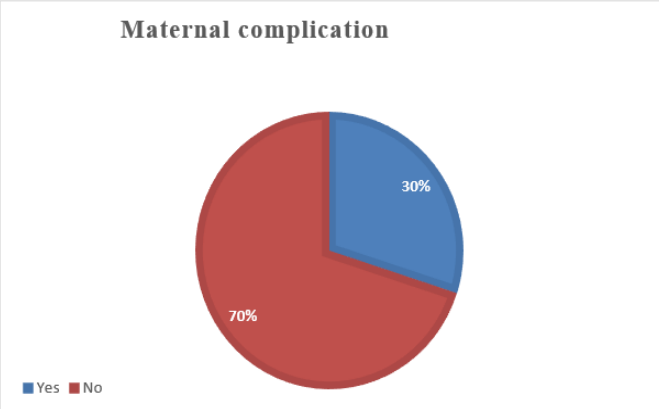

Figure 1: Maternal complications among respondents

Maternal complications per hospital

Regarding the distribution of maternal complications per hospital, the results revealed that less than a half 52(43.7%) of respondents were from Mbagathi District Hospital, followed by Pumwani 48(40.3%) and the rest 19(16.0%) Mama Lucy Kibaki Hospital. The results were as presented in table 2.

Table 2: Distribution of maternal complications per hospital

Hospital	No of complications	Per cent (%)
Pumwani	48	40.3
Mbagathi	52	43.7
Mama Lucy Kibaki	19	16.0
Total	119	100.0

Types of maternal complications

Regarding the type of maternal complications experienced among respondents, 47 (39.8%) had postpartum hemorrhage, 31 (26.3%) reported postpartum eclampsia, 25 (21.2%) had postpartum sepsis and 15 (12.7%) reported puerperal psychosis. The results presented in figure 2 below.

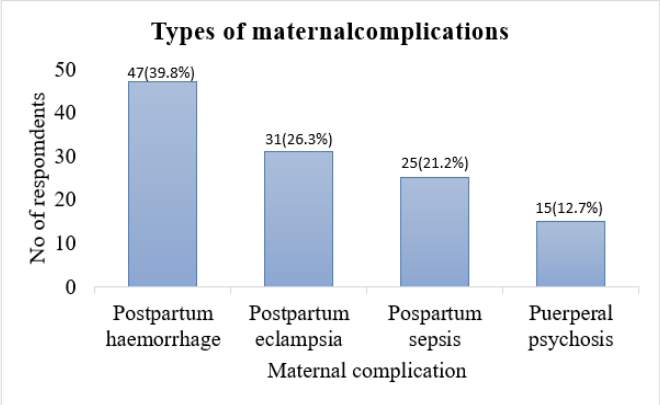

Figure 2: Types of maternal complications

Mode of delivery among respondents

The researcher further sought to know the association between mode of delivery and having a maternal complication. The results showed that majority 205 (73.7%) of the respondents who did not report any maternal complication delivered through the vagina. There was a significant statistical association between mode of delivery and getting a maternal complication (p=0.001). The results are as in the table 3.

FANC knowledge factors

Respondents responses on questions on knowledge of FANC

Regarding respondents' knowledge on antenatal care, the study participants, a checklist of nine statements on focused antenatal care. They were supposed to indicate whether the statements were true or false according to them. Their responses computed as either correct or incorrect. In relation to whether the first ANC visit should occur during the first trimester of pregnancy (8-12weeks), the findings indicate that more than a half 224 (56.4%) of respondents had correct knowledge while the rest 173(43.6%) had incorrect knowledge.

Qualitative results from key informants revealed that women indeed should visit the ANC clinic during the early stages of pregnancy so that they get all the required supplements and vaccines to avoid any future complications. During the KII sessions, a Nurse at the ANC clinic said;

".. the first visit is very important for the pregnant women because most tests are conducted and they are offered with the required supplements, vaccines as well as health education regarding pregnancy. They are also encouraged to continue attending clinics to get subsequent services."

Most of the respondents 246 (62.0%) had incorrect knowledge on whether WHO recommendation on a minimum of 4 ANC visits per pregnancy while 151 (38.05) had correct knowledge. On whether FANC was important for improving better pregnancy, more than half 220 (55.4%) of the respondents had correct knowledge while 177 (44.6%) had incorrect knowledge. The results also showed that majority 264 (66.5%) of the respondents had correct knowledge on whether FANC was the approved antenatal care by WHO for pregnant women while 133 (33.5%) had incorrect knowledge.

When the respondents were asked whether Each FANC visit includes care that is appropriate for the duration of pregnancy, slightly more than half 215 (54.2%) had incorrect knowledge while 182 (45.8%) had correct knowledge. In relation to whether FANC dealt with each woman's specific need, majority 271 (68.3%) of the respondents had correct knowledge while 126 (31.7% had incorrect knowledge. The results showed that, slightly more than half 208 (52.4%) of the respondents had correct knowledge on whether FANC focused on quality of care rather than quantity of care used while 189 (47.6%) had incorrect knowledge.

Table 3: Association between delivery mode and maternal complications among respondents (n=397)

Independent Variable	Respondent response	Dependent variable (Maternal complication)		Frequency (N)	Statistical significance
		Yes (N=119)	No (N=278)		
Delivery mode	Vaginal	65(54.6%)	205(73.7%)	270 (68.0%)	$\chi 2 = 14.001$ df=1
	Caesarean section	54(45.4%)	73(26.3%)	127(32.0%)	p=0.001

Results further revealed that when respondents asked whether FANC helped in birth preparedness and complication readiness planning, slightly more than half 214 (53.9%) had correct knowledge while 183 (46.1%) had incorrect knowledge. When the respondents were asked whether Pregnant women were provided with vaccines and supplements during ANC check-ups, more than half 221 (55.7%) had incorrect knowledge while 176 (44.3%) reported correct knowledge. The results are as showed in table 4.

Respondents' knowledge level on FANC

This section consisted of results concerning knowledge on FANC among respondents. The nine questions on knowledge had scores, which ranged from 0-9 marks. Each correct answer was awarded a score of 1 while a wrong answer was awarded a score of zero (0). The scores of knowledge were further dived into two categories; low knowledge level ranged from 0-4 scores while high knowledge level ranged from 5-9 scores. The results revealed that 217 (54.7%) of the respondents had high knowledge levels while the rest 180 (45.3%) had low knowledge levels as shown in figure 3.

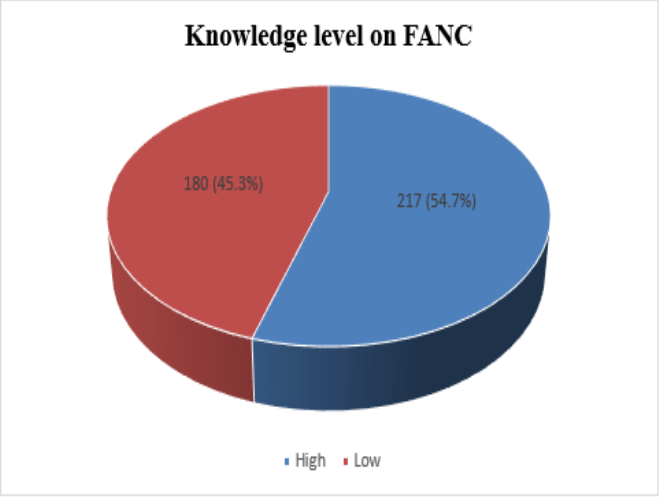

Figure 3: Knowledge levels on FANC among respondents

Association between FANC knowledge level and maternal complication among respondents

Majority 169 (60.8%) of the respondents did report any maternal complications had higher knowledge level on FANC. There was a significant statistical association between knowledge level and getting a maternal complication (p=0.017). The results were as presented in the table 5.

Table 4: Association between delivery mode and maternal complications among respondents (n=397)

Knowledge variable	Respondent's knowledge response	Frequency (N)	Percentage (%)
The first ANC visit should occur during the trimester of pregnancy (8-12 Weeks)	Correct	224	56.4
	Wrong	173	43.6
The WHO recommends a minimum of 4 ANC visits per pregnancy	Correct	151	38.0
	Wrong	246	62.0
FANC is important for improving better pregnancy outcomes	Correct	220	55.4
	Wrong	177	44.6
FANC is the approved antenatal care by WHO for pregnant women	Correct	264	66.5
	Wrong	133	33.5
Each FANC visit includes care that is appropriate for the duration of pregnancy	Correct	182	45.8
	Wrong	215	54.2
FANC deals with each woman's specific need	Correct	271	68.3
	Wrong	126	31.7
FANC focuses on quality of care rather than quantity of care used	Correct	208	52.4
	Wrong	189	47.6
FANC helps in birth preparedness and complication readiness planning	Correct	214	53.9
	Wrong	183	46.1
Pregnant women are provided with vaccines and supplements during ANC check-ups	Correct	176	44.3
	Wrong	221	55.7

Table 5: Association between knowledge level on FANC and maternal complication among respondents (n=397)

Independent Variable	Respondent response	Dependent variable (Maternal complication)		Statistical significance
		Yes (N=119)	No (N=278)	
Knowledge level	High	48(40.3%)	169(60.8%)	$\chi 2=14.069$ df=1 p=0.017
	Low	71(59.7%)	109(39.2%)	

Women's attitude towards FANC

Respondents' responses on attitude towards FANC

Regarding attitude of respondents towards focused antenatal care, there were seven (7) questions on a Likert scale of scores ranging 1-4 in which "1" meant strongly disagree and "4" meant strongly agree. The results revealed that majority 248 (56.0%) of respondents of which 139(35.0%) agreed and 109 (27.5%) strongly agreed that they preferred FANC during pregnancy since it involved counselling about women's reproductive health. The results revealed that slightly more than a half 216 (54.4%) of which 121(30.5%) agreed and 95 (23.9%) strongly agreed that FANC helped in preventing negative outcomes of pregnancy.

Majority 268 (67.5%) of the respondents of which 142 (35.8%) strongly agreed and 126 (31.7%) agreed that attending FANC was good for the wellbeing of the mother. Regarding FANC helping in detecting diseases early in a pregnant woman, slightly more than half 209 (52.6%) of which 112 (28.2%) strongly disagreed and 97 (24.4%) disagreed with the statement. The results further showed that half 202 (50.9%) of the respondents of which 137 (34.5%) strongly agreed and 65 (16.4%) agreed that they preferred FANC because seeing other women in the clinic helped in relieving their anxiety.

About half 200 (50.4%) of the respondents of which 104 (26.2%) disagreed and 96 (24.2%) strongly disagreed that they hated traditional ANC because it did not screen for risk factors. More than half 237 (59.7%) of the respondents of which 156 (39.3%) agreed and 81 (20.4%) strongly agreed that they felt FANC gave them an opportunity to access individualized care. The results are as presented in table 6.

Table 6: Attitude towards FANC among respondents (n=397)

Independent variable	Respondent's response (%)			
	Strongly Disagree	Disagree	Agree	Strongly agree
I prefer FANC for use during pregnancy since it involves counselling about women's health	90(22.7%)	59(14.9%)	139(35.0%)	109(27.5%)
FANC prevents negative pregnancy outcomes	78(19.6%)	103(25.9%)	121(30.5%)	95(23.9%)
Attending FANC is for wellbeing of the mother	73(18.4%)	56(14.1%)	126(31.7%)	142(35.8%)
FANC detects disease early in a pregnant woman	112(28.2%)	97(24.4%)	86(21.7%)	102(25.7%)
I prefer FANC because seeing other women in the clinic relieves anxiety	80(20.2%)	115(29.0%)	65(16.4%)	137(34.5%)
I hate traditional ANC because it does not use screening for risk factors	96(24.2%)	104(26.2%)	126(31.7%)	71(17.9%)
I feel FANC as the opportunity for individualized care	72(18.1%)	88(22.2%)	156(39.3%)	81(20.4%)

Level of attitude towards FANC

This section consists of results concerning attitude towards FANC among respondents. The seven questions on attitude had a minimum score of 7 and a maximum score of 28. Then scores divided further into two categories; Negative attitude scores ranged from 7-17 while positive attitude had scores ranging from 18-28. The results revealed that 253 (63.7%) of respondents had a positive attitude towards FANC while the rest 144 (36.3%) had a negative attitude. The results presented in figure 4.

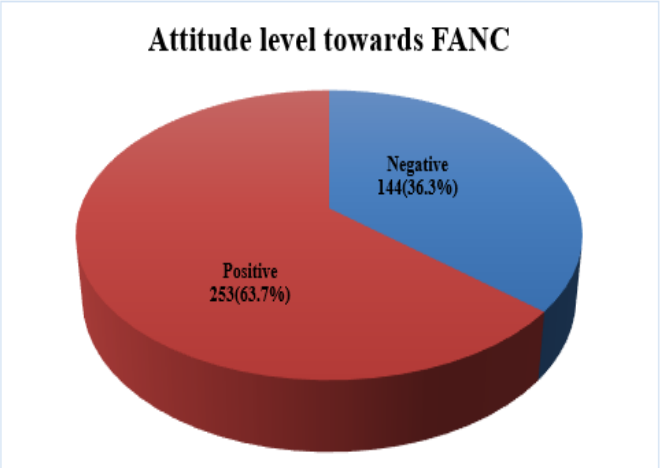

Figure 4: Attitude towards FANC

Association between attitude towards FANC and maternal complication

The results revealed that majority 161 (63.6%) who did not report to have had any complications had a positive attitude towards FANC. However, there was no statistical association between attitude and getting a maternal complication (p=0.637). These results were as presented in table 7.

DISCUSSION

Maternal complications

Regarding the type of maternal complication experienced by respondents, the results showed that hemorrhage was the most prevalent complication. It could be the fact that women lose a lot of blood during delivery, which may require blood transfusion. This was likely because performance of active management of third stage of Labour was unlikely. The results concurred with other studies in the United States of America and Ethiopia, which revealed that hemorrhage is the leading cause of maternal complication that accounts for approximately three quarters of maternal deaths in the world (10.11). The results were contrary to another study done in the United States of America, which revealed that hypertensive disorders were the most common maternal complications among pregnant women that would be because of lifestyle changes among women (12).

The results also revealed that majority of respondents with a vaginal mode of delivery did not encounter any maternal complication during delivery. However, there was a significant statistical association between mode of delivery and maternal complication. This may be because women experiencing life-threatening complications have higher likelihood of hospital referrals, which may lead to emergency caesarean section to deliver the mother out of danger. The results were in agreement with a survey conducted in Western Kenya, which revealed that majority of maternal complications leading to deaths occur in the course of normal delivery (13). These findings were also contrary to a study done in Brazil which revealed that majority

Table 7: Association between attitudes towards FANC and maternal complication among respondents (n=397)

Independent Variable	Respondent response	Dependent variable (Maternal complication)		Statistical significance
		Yes (N=119)	No (N=278)	
Attitude level	Positive	92(36.4%)	161(63.6%)	$\chi 2$=13.564 df=1 p=0.637
	Negative	27(18.8%)	117(81.2%)	

of patients with higher maternal complications were delivered through caesarean section (14). This attribution was the fact that seventy five per cent of caesarean deliveries done under emergency when the life of the mother is thought to be in jeopardy.

Knowledge on FANC

The results revealed that majority of respondents had correct knowledge on the importance of FANC as they attributed it improving better pregnancy outcomes. This attributes to the fact that the concept of FANC was not new to them. The respondents were from an urban residence where access to information is not limited as well the concept implemented in Kenya in a few decades ago. The results were consistent to a study by Finlayson and Downe (15), who argued that lack of an understanding of benefits of attending a focused antenatal care coupled with perceiving pregnancy as a normal life event are attributed to poor ANC attendance thus increased maternal complications.

Regarding on the timing of first ANC visit, majority of respondents had correct knowledge as they revealed that first ANC visit made during the first trimester stemmed at 12 weeks of pregnancy. This was in accordance with the WHO FANC model, which states that the first ANC visit made early to allow identification pregnancy complications at an early stage where necessary efforts made to reduce the magnitude of injury (16). Similar results reported by studies done in Ethiopia and Nigeria, which attributed lack of correct knowledge on FANC to late start of ANC attendance among respondents (17).

Based on the knowledge variables studied, the results revealed that the respondents had high knowledge levels concerning FANC utilization. This explains the reason there were correct answers to the knowledge questions. In fact, knowledge on FANC had a significant association with maternal complication occurrence. This is because high knowledge levels means majority of respondents would seek the required FANC services thus reduced maternal complications. The results were consistent with a study done in Calabar Hospital in Nigeria revealed that majority of study respondents had good knowledge towards FANC (18). In another study done in Egypt, showed that most respondents interviewed had appropriate knowledge on FANC attendance (19).

Women's attitude towards FANC

The results revealed that majority of respondents preferred FANC during pregnancy since it involved counselling about women's reproductive health. This explained by the fact that women are curious about their health during pregnancy hence they do not take it as a normal life event. The results were consistent with a study done in Nigeria which revealed that majority of respondents viewed FANC as an opportunity for pregnant women to be counselled on their pregnancy status (18). This study results further showed that most of the respondents who were management of FANC believed that it helped pregnant women in preventing negative outcomes of pregnancy. This is because they guidance was given on how to take care of their pregnancy during their gestational periods. This helps them to prepare psychologically for delivery thus reducing the chances of maternal complications. Another study in Egypt came up with the same results. This attributed to positive pregnancy outcomes to the benefits of FANC among hospital deliveries (19). The guidance on the correct diet to feed and engaging in exercises to improve their pregnancy outcomes had good results.

Majority of respondents in this study felt attending FANC was for the wellbeing being of the mother as well as the fetus. The attendance to the ANC increased. When implemented as required by the WHO guidelines, it helps in early detection diseases and other complications during pregnancy (20). This turn helps prevent and manage maternal complications at an early stage. These results were in agreement with a study done in Tanzania, which showed that women's acceptance for screening meant that they were aware and willing to undergo such tests to avoid maternal complications because of pregnancy (21)

The results further showed that most of the respondents they preferred FANC because seeing other women in the clinic helped in relieving their anxiety. In fact, they felt that FANC gives them an opportunity to access individualized care from care

providers. The results however were inconsistent with a study done in Saiya County in Kenya, which attributed FANC to several barriers, which prevents individualized care among clients (8).

The results further revealed that women a positive attitude towards utilization of FANC services in Nairobi City County. Generally, women prefer to take care of themselves as well as their unborn babies. This explains the reason for the majority of the women reporting high utilization rates reduce unnecessary maternal complications. However, the results did not show a significant statistical association between level of attitude and maternal complication among respondents. The results were similar to a study done in Nigeria which showed that majority of respondents had a positive attitude towards FANC utilization (22)

However, in another study done in Dodoma Municipal in Tanzania, the results were contrary in that majority of respondents reported a negative attitude towards FANC (21). This may be attributed to the nature of how services are provided under FANC, with long waiting and congestion in public hospitals across the developing countries.

CONCLUSIONS AND RECOMMENDATIONS

The study revealed that the rates of occurrence of maternal complications were relatively low and mainly associated with the mode of delivery. Knowledge on FANC was significantly associated with maternal complications due to perceived use of ANC services among respondents. High knowledge level explains the reason for high utilization of FANC services thus reducing maternal complications.

Policy makers should tailor and scale up male creation of sensitization and awareness programs. This would ensure improved transfer of correct knowledge on FANC thus signify importance of seeking such services while pregnant.

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