Sociodemographic Characteristics and Level of Adherence to Focused Antenatal Care Guidelines among Nurses and Midwives Working at the Selected Health Facilities at Imenti South Sub-County of Meru County

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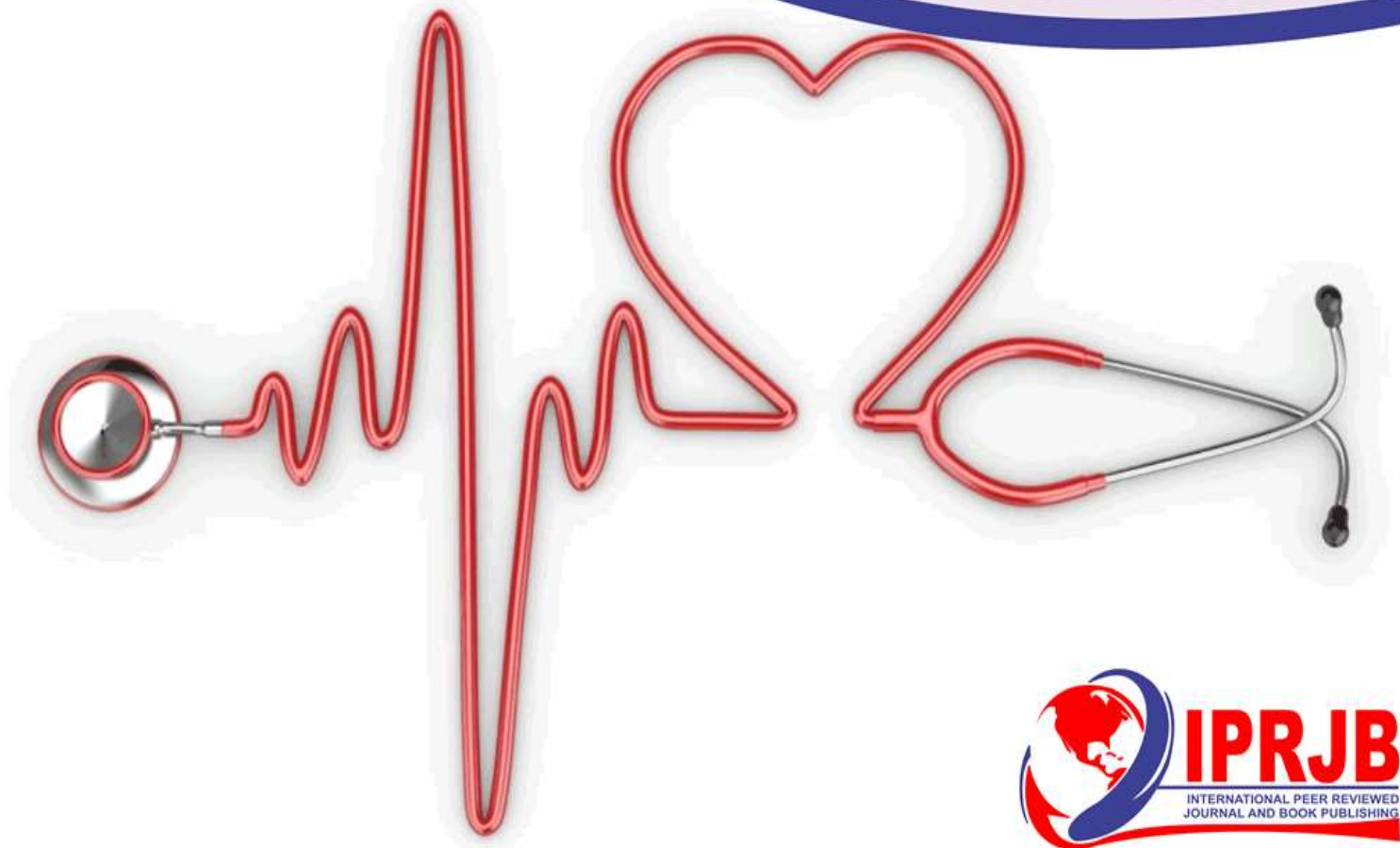
Sociodemographic Characteristics and Level of Adherence to Focused Antenatal Care Guidelines among Nurses and Midwives Working at the Selected Health Facilities at Imenti South Sub-County of Meru County

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Abstract

Purpose: Focused antenatal care is essential to improving neonatal and maternal health by preventing, identifying, and treating medical conditions that endanger a pregnant woman's health besides a fetus. This study aimed to determine nurses' and midwives' adherence to set procedures in focused antenatal care.

Methodology: The study adopted an analytical cross-sectional research design. It involved 55 nurses and midwives working at the antenatal clinic in the level 4 (sub-county referral) hospitals, level 3 (health centers), and level 2 (dispensaries) in selected health facilities at Imenti-South sub-county facilities of Meru County. A census was done on all nurses and midwives working at selected health facilities in the Imenti-South Sub-County of Meru County. Data was collected using an observational checklist and a researcher-administered questionnaire. Pre-testing of the data collection instruments was done at public health facilities in the Imenti-central sub-county of Meru County. Analysis was carried out using SPSS version 27. Descriptive statistics i.e. mean, standard deviation, percentages, and frequencies were used to analyze data. Quantitative data is presented in the form of tables, charts, and graphs.

Findings: The mean age of the participants was 35.91 ±10.92 SD with more than half being less than 36 years (56.4%). The majority were females (60%). About three-quarters had a diploma in nursing. The majority of the facilities were level II (60%). More than half of the nurse-midwives had no in-service training on FANC (72.7%). There were slightly more participants with good adherence to FANC guidelines (50.9%) than those with poor adherence (49.1%). Adherence was significantly associated with the level of the facility (χ^2 = 9.894, df=2 and p = 0.007) although it was not a significant predictor of adherence (p>0.05). The percentage of nurse-midwives with good and poor adherence to FANC guidelines was almost equal.

Unique Contribution: There is a need to train the nurse-midwives on the current FANC guidelines as well as provide continuous monitoring and evaluation to enhance adherence. The county government in collaboration with the national government should come up with training manuals to train the nurses and midwives on the FANC guidelines.

Keywords: *Focused Antenatal Care, Antenatal Care Guidelines, Nurses, Maternal, Child Health, Midwives, Antenatal Services*

JEL Codes: *I15, I12, I18, J44, Z13*

INTRODUCTION

Antenatal care (ANC) is care given by a qualified healthcare professional to a pregnant woman from the time of conception until the beginning of labor. A healthy child and healthy mother at the end of the pregnancy is the main objective of antenatal care. Focused antenatal care (FANC) is an ANC model that is goal-oriented, and it provides specified interventions that are evidence-based and performed at certain critical times during pregnancy (Aderoba et al., 2022). The World Health Organization (WHO) introduced FANC in 2001 and Kenya adopted this model in 2003 (MOH, 2020). FANC is made up of eight contacts, each contact has a well-defined set of activities that have proven beneficial to the neonate and the mother. In 2020 WHO prompted the adoption of the new ANC model in low-income countries based on evidence-based recommendations (WHO,2020). Ensuring that pregnant women get all recommended components of FANC is fundamental in providing high-quality antenatal care (Tadesse Fenta, et al., 2024). All pregnant women have a high probability of complications; hence they ought to receive the FANC for early detection, treatment, and prevention of complications, ANC also links pregnant women with complications to an appropriate referral system for management and also increases the chance of utilizing skilled birth attendance (Villar et al., 2021). FANC is a major health intervention in reducing neonatal, and maternal mortality and morbidity (Gebrekirstos et al., 2021).

Global maternal mortality estimates indicate that most of the countries in Sub-Saharan Africa have a maternal mortality ratio (MMR) that is greater than 550 per 100,000 live births. Antenatal care in the United States of America is rendered by three groups of providers licensed nurses and midwives, family physicians, and obstetrician-gynecologists. According to Hijazi et al. (2018) in Northern Jordan, the factors influencing quality antenatal care are; receiving information and education during an antenatal visit, providing chances for antenatal dialogue, and scheduling antenatal sessions.

In sub-Saharan Africa (SSA), nurses are more involved in providing ANC than doctors and clinical officers (Owili et al., 2019). There has been a decrease in the world maternal mortality ratio (MMR), Sub-Saharan Africa records a very high MMR. FANC is a pillar of maternal and newborn health, whose aim is complication prevention, early detection, and treatment of pregnancy-related complications. With an aim to decrease maternal and neonatal mortality and morbidity (MOH et al., 2022). Current trends show that by 2030 the Region will still record 390 maternal deaths per 100,000 live births, very far from the target (UNICEF, 2022). A study done to check healthcare providers' compliance with FANC guidelines in Ghana, Burkina Faso, and rural Tanzania showed that healthcare providers in all three locations failed to perform some procedures prescribed in the FANC guidelines. The procedures were organized as; clinical examination, provision of health education, distribution of prophylactic drugs, and laboratory testing, and only two procedures were performed in all three sites, there were under clinical examination i.e. listening to the fetal heart rate, and examination of the uterine (fundal) height (Khatri, et al., 2022). A study conducted in Tanzania indicates unsatisfactory healthcare provider compliance with first-visit ANC procedures (Bintabara et al., 2019).

In Kenya, 88 % of pregnant women receive ANC from a medical professional, 18% from doctors, and the remaining 70% from nurses (Kohe., 2021). Kenya's maternal mortality ratio is estimated at 414 per 100,000 live births. 73 % of all maternal deaths are attributable to direct obstetric causes. Some stated causes of maternal death include; obstetric hemorrhage, hypertensive reasons, sepsis, abortive and venous thromboembolism. The factors contributing

to these deaths are numerous and include a shortage of qualified health workers, which contributes to the low rate of skilled birth attendance (WHO, 2019). A study done in Siaya, Kenya found that procedures stipulated in FANC guidelines were partially performed by nurses while other procedures were completely omitted by nurses. This study deemed compliance with FANC fair (Chweya et al., 2018).

A survey conducted in Migori County, Kenya, revealed that adherence to FANC was sub-optimal. Only 16% of women had an ultrasound, 14 % had a urine test done and 58% had their blood pressure taken during every visit. Half of the antenatal mothers had not been subjected to health education on danger signs in pregnancy and one-third could not comprehend the purpose of the tests done and the medication given during ANC (Afulani et al., 2019). Despite Kenya having taken on FANC since 2003, maternal mortality and morbidity, as well as perinatal outcomes are major problems. Little is known about the extent to which nurses adhere to the performance of procedures set in FANC in Imenti South, Meru County Kenya, thus this study.

Problem Statement

Kenya being a United Nations member has to work toward meeting Sustainable Development Goal (SDG) 3. 1 which targets to bring down the global MMR below 70 per 100000 live births, and SDG 3.2 which targets to bring down neonatal mortality below 12 in 1000 live births. Records from Meru County indicate that Imenti South Sub-County has an MMR of 262 and an NMR of 22. A large percentage of maternal deaths are preventable and are usually due to complications during pregnancy, childbirth, or postnatal. FANC guidelines are designed to monitor and manage maternal health, identifying risks early. Non-adherence means that potential issues may not be detected or treated early, leading to increased complications during pregnancy and childbirth. These complications can result in maternal morbidity and mortality. Antenatal care is key in the prevention of neonatal and maternal mortality and morbidity. FANC guidelines also include postnatal care, which is essential in monitoring the mother's recovery and addressing any emerging health issues. Non-adherence can result in missed opportunities to detect postpartum complications such as hemorrhage, infections, or mental health disorders, leading to long-term maternal health problems. Non-adherence to FANC guidelines contributes significantly to the local maternal health burden by increasing the risk of preventable complications, delaying necessary interventions, and reducing the overall effectiveness of healthcare delivery for expectant mothers. Nurses and midwives are the main antenatal care providers in Kenya and they have a key role in the actualization of FANC, for implementation of FANC nurses and midwives should adhere to the guidelines in place. In Imenti South, there are no documented sources of information and statistics on nurses' and Midwives' adherence to FANC guidelines. No study has been documented on nurses' and midwives' adherence, facilitators, and barriers to FANC in the Imenti South Sub- County of Meru County.

Theoretical Framework

This research is based on Donabedian's quality model. This model lays out a framework for evaluating healthcare. The model comprises three dimensions; structure, process, and outcome (Donabedian, 1966). The structure describes physical and organizational characteristics where antenatal care occurs. Data collection under structure will focus on the characteristics of the health facilities and the healthcare workers. For example; the gender, age and professional qualification of the healthcare workers; the level of the facility as the characteristic of the facility. This data will be analyzed to assess how well the facilities are structured to support the

delivery of quality maternal healthcare. The structural data will allow understanding of whether inadequate training contributes to lower adherence to FANC guidelines.

The process characterizes the activities between the antenatal clients and the nurse or midwife throughout the delivery of focused antenatal care. The process looks if the nurse or midwife has taken a comprehensive history, performed a physical examination, ordered necessary tests, administered relevant supplements and vaccines, and offered relevant health education during the interaction with the antenatal client. In this study, the process aspect will focus on whether nurses and midwives follow the prescribed FANC guidelines. This model was chosen because it will help pinpoint gaps in adherence to the guidelines, and identify areas for improvement by nurses and midwives through interpretation of their actual practices.

The outcome is the nurses' and midwives' adherence to FANC guidelines which have an effect on the pregnancy outcome, i.e. maternal and neonatal mortality and morbidity. This model is chosen for this study because by analyzing the outcomes, the study can determine the effectiveness of adherence to FANC guidelines in improving maternal health. If higher adherence is associated with better health outcomes, this would support the importance of implementing and following these guidelines. Conversely, if poor adherence correlates with negative health outcomes, it would provide a clear argument for strengthening guideline adherence.

This model shows that violations of focused antenatal guidelines by nurses and midwives and how it affects adherence to focused antenatal care guidelines.

Empirical Review

Guidelines adherence aims to improve health outcomes after delivery and enhance the quality of health services, to bring down neonatal and maternal mortality and morbidity. Absolute ANC service provider adherence to set standards i.e., maternal nutritional advice, tetanus toxoid vaccination, iron, and folic acid supplementation was found to positively impact on neonatal birth weight (Tefera et al., 2018). ANC guideline adherence is a measure of the quality of ANC care (Owili et al., 2019). If ANC providers adhere to FANC guidelines this can lead to high-quality ANC. Absolute provider compliance to 1st visit ANC guidelines lessens maternal morbidity during the prenatal period (Seyoum, et al., 2021).

A study conducted in Ghana on the effect of mHealth Interventions in Improving Maternal and Neonatal Care in Low- and Middle-Income Countries found that healthcare providers did not adhere to the 1st ANC guidelines. This was attributed to lack of knowledge, it also revealed that the nurses were not aware that guidelines existed (Amoakoh et al., 2016). This study poses a conceptual gap as it focused on mHealth interventions in improving maternal and neonatal care. This gap will be filled by the current study as it focuses on the level of adherence of FANC guidelines.

A study done in Nigeria on Barriers to antenatal care use in Nigeria revealed non-compliance with WHO guidelines, and only 4.6 % of pregnant women had received all components of care. The most offered services were blood pressure measurement and iron supplementation. The least offered components of care were intermittent preventive treatment in pregnancy and individual history. The study concluded that skills acquired by ANC providers have a positive correlation with the quality of antenatal care provided (Fagbamigbe et al., 2015). This study presents a conceptual gap on the sociodemographic characteristics of the nurses and midwives, which will be filled by the current study.

An exploration study done in Ghana found out that the practicing midwives were aware of components of FANC, and would offer them as; detection and prevention of disease, health education of the clients mainly on danger signs in pregnancy, birth preparedness, and complication readiness. However, the practicing midwives omitted Laboratory investigations and this was attributed to the unavailability of supplies to carry out the HIV and syphilis tests (Baffour-Awuah et al., 2015). A prospective cohort study done in North West Ethiopia found that absolute healthcare workers' adherence to procedures set in ANC leads to improvement in neonatal outcomes i.e. a decrease in neonatal morbidity and mortality.

Pregnant women who received all components of the 1st ANC visit had a forty-four percent reduction in the risk of incidences of birth asphyxia, congenital anomalies, and stillbirths (Seyoum et al., 2021). Pregnant mothers whose ANC providers adhered to Ethiopian ANC guidelines had a fifty percent lower risk of anemia in pregnancy. This is because the providers counseled the women on, an iron-rich diet, and the importance of folic acid and iron tablets, and taught them ways of minimizing side effects. The study in Ethiopia shows 100% level of adherence to ANC guidelines in some instances while the study in Ghana shows selective adherence of FANC guidelines. Both studies don't mention sociodemographic characteristics of the nurses and midwives. This is a contextual gap to be filled by our current study. These two studies also present a geographical gap to be filled by our current study.

METHODOLOGY

The study was conducted in Imenti South sub-county public health facilities. The Imenti-South sub-county was purposefully chosen since it has the highest number of public health facilities in Meru County. The sub-county has three (3) level 4 public health facilities (sub-county), Three (3) level 3 public health facilities (health centers), and thirty-three (31) level 2 public health facilities (dispensaries). The research adopted an analytical cross-sectional research design since it was appropriate for obtaining precise and clear information concerning nurses' and midwives' adherence to FANC guidelines. The study involved all the 55 nurses and midwives offering antenatal care services in public health facilities, in Imenti South, Meru County. Twelve (12) in sub-county health facilities, 12 in health centers, and 31 in dispensaries. Data was collected by the use of a structured, researcher-administered questionnaire and an observational checklist. To check out the reliability of the data collecting tools; questionnaire and observational checklist, a pre-testing was done. A total of 6 respondents were used. Reliability was ascertained using the test-retest method, 10 % of the sample size (6 respondents) was used. Using a 0.7 cut-off, Cronbach's alpha was utilized to evaluate the instrument's reliability. The reliability co-efficient was 0.88. Due to the instrument's 0.88 co-efficient exceeding the suggested 0.7 cut off, it was deemed reliable. To ensure validity, the researcher with the help of research supervisors scrutinized the questionnaire and observational checklist, and their feedback was incorporated. Analysis was carried out using SPSS version 27. Descriptive statistics i.e. mean, standard deviation, percentages, and frequencies were used to analyze data. Quantitative data is presented in the form of tables, charts, and graphs.

RESULTS

Sociodemographic Characteristics of Study Participants

Fifty-five (55) respondents participated in the study, representing a 100% response rate. Most participants were female nurses 33(60%), and the males 22 (40%). The youngest was 23 while the oldest was 58 years old. The mean age of the respondents was 35.91 ±10.92 SD. Most respondents were below 36 years old (31(56.4%). The majority of the participants had a

diploma in nursing 41 (74.5%), 6 (10.9%) respondents had a basic degree, 6 (10.9%) had a certificate, and only 2 (3.7 %) had a master's degree. The average years of general experience was 10.45 ±10.05 SD while that of offering services in ANC was 3.89±3.71 SD. More than half of the facilities were level 2 (60%). Almost three-quarters of the respondents had not been trained on FANC (72.7%). More than half of the facilities had a copy of FANC guidelines (60%) as shown in Table 1.

Table 1: Socio-demographic Characteristics

Variable	N (%)
Gender	
Male	22(40)
Female	**33(60)**
Age	
Mean (SD)	35.91(±10.92)
Range	23 - 58
Age group	
<36 years	**31(56.4)**
≥36 years	24(43.6)
Level of education	
Certificate	6(10.9)
Diploma	**41(74.5)**
Basic degree	6(10.9)
Masters	2(3.6)
General work experience	
Mean (SD)	10.45(±10.05)
Range	1 – 33
Below 10 years	**32(58.2)**
10 years and above	23(41.8)
Duration of working in ANC	
Mean (SD)	3.89(±3.71)
Range	1 – 20
4 years and below	**36(65.5)**
Above 4 years	19(34.5)
Facility level	
Level 2	**33(60)**
Level 3	11(20)
Level 4	11(20)
Trained on ANC	
No	**40(72.7)**
Yes	15(27.3)
Time elapsed since the last training	
Mean(SD)	5.87(±3.07)
Range	2 – 14
FANC guidelines copy available in the facility	
No	22 (40)
Yes	**33(60)**

Adherence to FANC Guidelines

The nurses captured the pregnant mothers' history as shown in Figure 3.1. The most obtained history was bio-demographic data (21%) and past obstetric history (21%) whereas family history was the least obtained (8%).
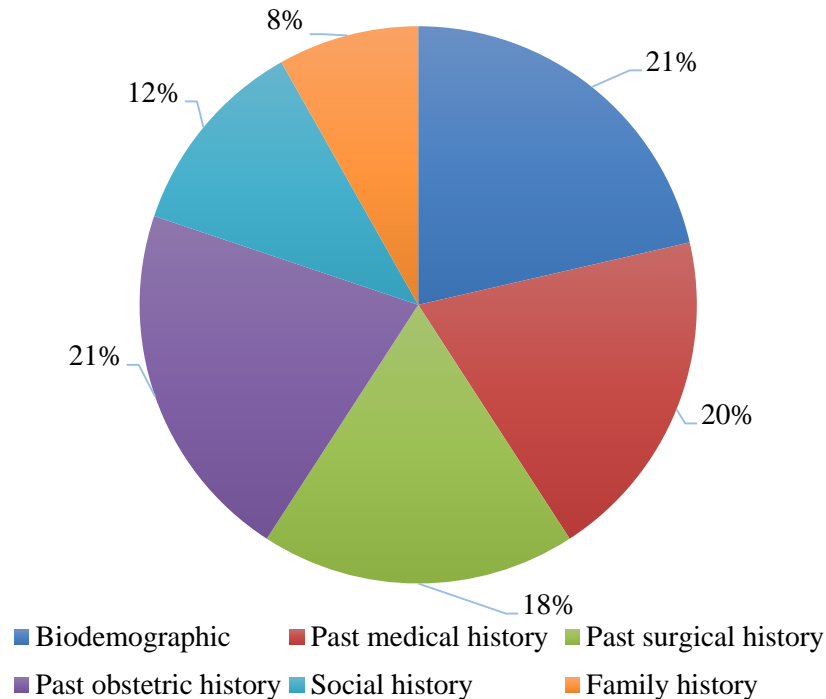

Figure 1: Respondent's Adherence to History Taking

The nurses were also observed carrying out the physical examination on the pregnant women. The outcome of areas observed are as shown in figure 2. Almost all of the respondents did an abdominal examination (92.7%) while breast examination was the least done (14.5%).
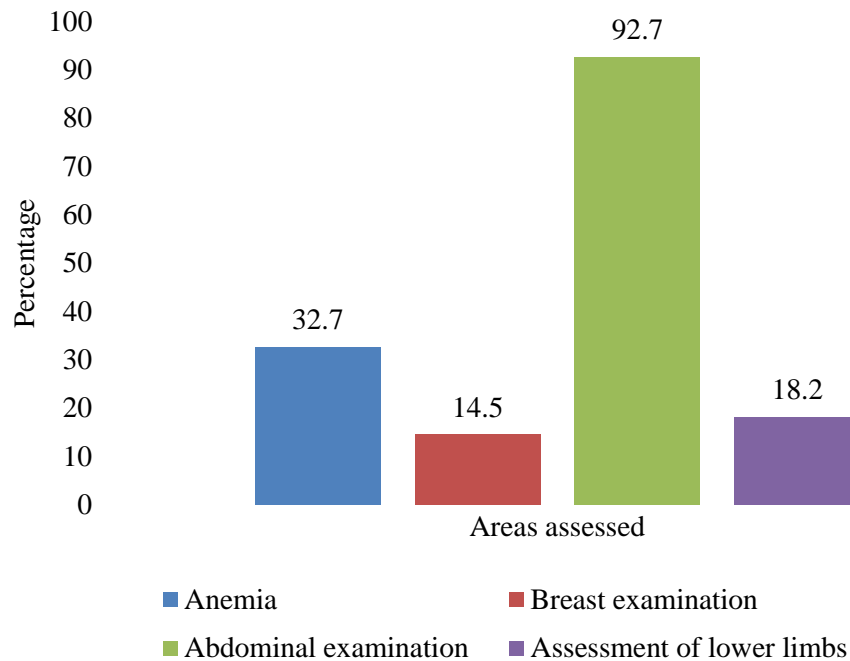
Figure 2: Nurse's Adherence to Physical Examination

Some of the health messages that nurses shared with the pregnant women are illustrated in figure 3. The most frequently shared health message was nutrition in pregnancy (37%). However, prevention of malaria in pregnancy was the least shared health message (13%).
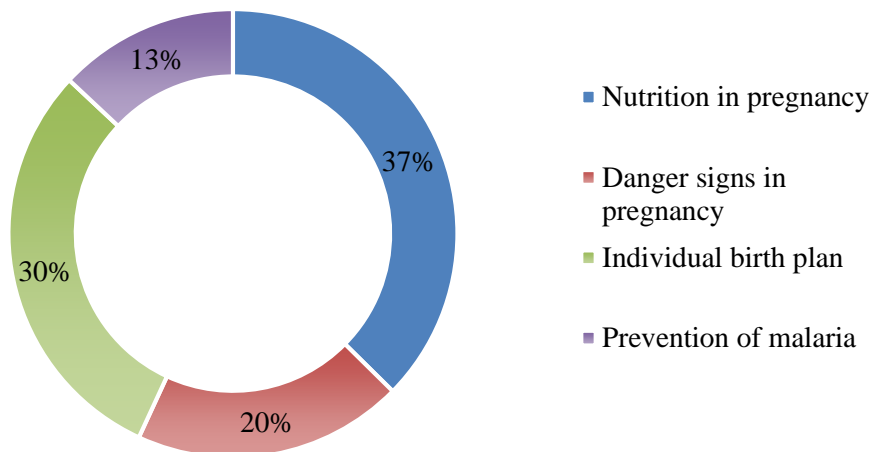

Figure 3: Health Messages Shared by Nurse-Midwives

Provision of IFAS was as shown in Figure 4. Majority of the nurses administered IFAS to the pregnant women (90.9%).
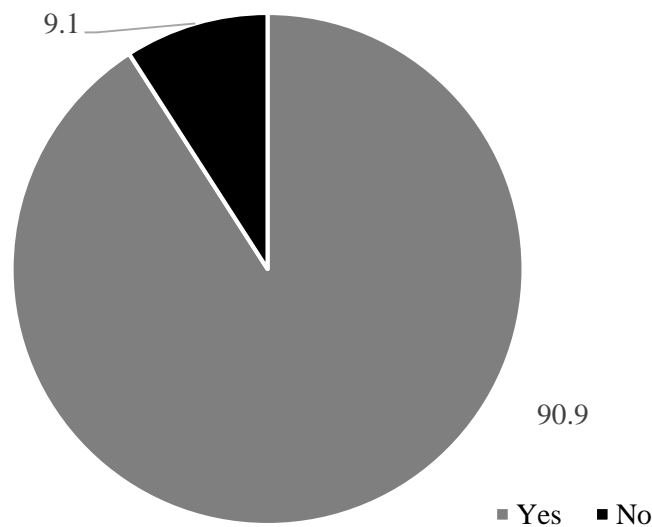
www.iprjb.org

Figure 4: Provision of IFAS to the Mothers

The majority of the nurses administered the deworming tablets and TT as depicted in Table 2; 22(58.2%) and 54(98.2%) respectively.

Table 2: Administration of Deworming Tablets and TT

Variable	Frequency (%)
Administration of TT	
Yes	54 (98.2)
No	1(1.8)
Deworming tablets	
Yes	23(58.2)
No	32(41.8)

The nurses were observed on the tests that they recommended to the mothers. The tests were recommended as demonstrated in figure 5. The highly recommended test was HIV (98.2%) while the least was routine ultrasound (27.3%).
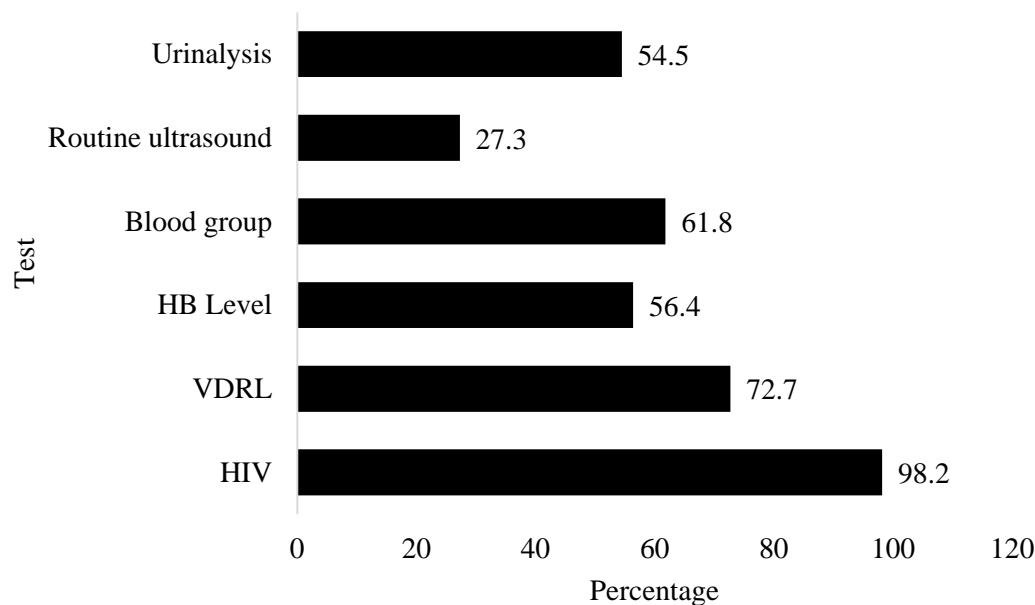
Figure 5: Antenatal Tests Recommended to the Pregnant Women

Adherence to FANC guidelines was determined by adding all the components observed while the nurses were offering services. The adherence score was determined and classified into poor and good adherence around the median. Table 3 shows the adherence scores and level.

Table 3: Nurses' Adherence to FANC Guidelines

Variable	Frequency (%)
Adherence score Mean(SD) - 53.04 Median – 52.17 Range – 26 – 83	
Level of adherence Poor adherence Good adherence	 27(49.1) 28 (50.9)

Relationship between Sociodemographic Characteristics and Adherence to FANC Guidelines

Adherence to FANC guidelines was significantly associated with level of the facility (χ^2 = 9.894, df=2 and p = 0.007) as shown in Table 4.

Table 4: Association between Sociodemographic Characteristics and Adherence to FANC Guidelines

Sociodemographic characteristic	Poor adherence	Good adherence	χ^2	df	p-value
Gender					
Male	11(20)	11(20)	0.012	1	0.912
Female	16(29.1)	17(30.9)			
Age					
Below 36 years	17(30.9)	14 (25.5)	0.939	1	0.333
36 years and above	10 (18.2)	14 (25.5)			
Level of education					
Certificate	3(5.5)	3(5.5)			
Diploma	21(38.2)	20(36.4)	0.512	2	0.774
Degree	3 (5.5)	5 (9.1)			
Work experience					
Below 10 years	17(30.9)	15(27.3)	0.498	1	0.480
≥10 years	10(18.2)	13(23.6)			
Duration of working in ANC					
≤ 4years	18(32.7)	18(32.7)	0.034	1	0.853
> 4 years	9(16.4)	10(18.2)			
Level of the facility					
Level 2					
Level 3	21(38.2)	12(21.8)	9.894	2	**0.007**
Level 4	1(1.8)	10(18.2)			
	5(9.1)	6(10.9)			
Trained on ANC					
No	22(40)	18(32.7)	2.049	1	0.152
Yes	5(9.1)	10(18.2)			

Variables with a p-value of ≤ 0.05 were included in a logistic regression analysis. There was no statistically significant association between adherence and the level of the facility (p>0.05) as shown in Table 5.

Table 5: A Logistic Regression Analysis showing the Relationship between Adherence and Level of the Facility

	Variable	N (%)	Poor adherence COR(95%CI)	p-value
Good adherence	Level of the facility			
	Level 2	21(38.2)	0.476(0.119 -1.898)	0.293
	Level 3	1(1.8)	8.33(0.776–89.470)	0.080
	Level 4	5(9.1)	1	

CONCLUSION AND RECOMMENDATIONS

Conclusion

A majority of the participants in this study were females. The majority highest level of education was a diploma in nursing. Most had been practicing for less than 10 years. Two-

thirds were working in level II facilities. The majority of the participants had not received any formal training on FANC guidelines. Those with poor and good adherence to FANC guidelines were almost equal. There are more nurse-midwives in the Imenti South Sub- County in Meru County with good adherence to FANC guidelines than those with poor adherence. There was no significant relationship between adherence to FANC guidelines and number of nurses, duration of working hours and number of pregnant women reviewed per week (workload).

Recommendations

There is a need to conduct in-service training on the current guidelines of FANC among the nurses and midwives in Imenti South Sub- County in Meru County. To ensure that pregnant women receive optimal ANC services, the nurses in Imenti South Sub- County in Meru County should adhere to the FANC guidelines recommended by WHO and MOH, Kenya. The county government in collaboration with the national government should come up with training manuals to train the nurses and midwives in Imenti South Sub- County in Meru County on the FANC guidelines. There is a need to conduct continuous monitoring and evaluation of adherence to the FANC guidelines.

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