

Assessment of Focused Antenatal Care Compliance Predictors in Kisumu East District Hospital, Kenya

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Abstract: Focused Antenatal care was introduced following failure of the Standard ANC model, to limit the number of visits to the clinic, restrict tests, clinical procedures and actions to those which would improve the outcome of both the mother and the newborn. FANC is intended to prevent or identify and treat conditions that may threaten the health of the newborn and/or the mother, and help a woman to approach pregnancy and birth as a positive experience, and to a large extent it helps to provide a good start for the newborn child. This study assessed the predictors of compliance of FANC among pregnant women at Kisumu East District Hospital. Data was collected from 258 women of reproductive age group through cross-sectional study, and one-stage exit interviews from the Antenatal clinic (ANC) and post natal ward. 74.1% of women reported satisfaction with history taking and clinical examination. On the other hand, history taking and obstetric examination were only carried out in 75.3% and 93.5% respectively at the first visit but the rates were lower with consecutive visits. Significant predictors of FANC compliance that were found to have a p-value < 0.05 were: residence (p-value= 0.001, OR=1.1, CI=.5-2.36), maternal education (OR= 3.6, CI=1.7-7.7), Household financial status (OR= 5.2, CI= 2.8-9.6), woman's source of income (OR=4.1, CI=.7-3.3) and awareness of FANC (OR=1.9, CI=1.1-3.5). This study showed that the compliance to FANC service was very low despite the presence of skilled and friendly service providers in the facilities. Factors associated with poor compliance included limited knowledge and poor attitude among participants and KEDH staff. Based on this study, it is recommended that stakeholders improve awareness of the new FANC model, improve counseling/ health education and upgrade antenatal clinic infrastructure as well as supplies at KEDH. It is also recommended for further research to elucidate the implications of poor compliance.

Keywords: Significant predictors, Focused Antenatal Care, compliance, World Health Organisation, enabling Factors.

I. INTRODUCTION

Lack of quality services, lack of essential supplies and trained personnel, lack of access to quality care, lack of facilities for emergency transport, poor infrastructure and lack of or poor referral services, are all crucial steps on the road towards mortality. Questionable quality of health care in the United States has been associated with lack of compliance by patients (Ronan, 2006) that is, most segments of population receive sub-standard health care. This is repeated in most part of the world due to poor socio-economic class. For example, in a study conducted in Ethiopia, where low utilization of professional ANC (27%) was mainly attributed to HCWs attitude based on the clients place of residence and level of education. According to a study conducted in South Africa to determine utilization of ANC services among primigravidas, indicated that poor utilization was due to poor service provision. In this study, service provision was described in terms of communication with HCWs and health service provision. Others included marital status and religion. In Uganda, components of FANC were better offered in private hospital clinics than in public clinics in quality of care thus increasing compliance of 4+ ANC, leading to an increase in hospital deliveries (Tann et al, 2007). In Rarieda (Nyanza), 18% of pregnant women were reported not to have visited the nearest ANC clinics and instead visited distant facilities due to better-perceived care (78%), or lower cost (13%). Seven percent (7%) of women visited more than one ANC, because of a temporary move or because services were thought to be better in the second ANC (Eijk et al, 2006).

Based on the a peri-natal education program some principles that facilitate a reduction in the number of visits yet maintaining quality include; identification of special health conditions using a simple checklist (WHO, 2002), timing of visits so that maximum benefits can be obtained, performance of examinations and rapid and easy tests that are beneficial at an appropriate time and HCWs positive attitude (Burns & Grove, 2005) so as to encourage women to keep their dates. A cross-sectional study on compliance with FANC, which studied Health Care Workers (HCWs) compliance to stipulated components in Burkina Faso, Uganda and Tanzania, revealed that HCWs did not perform all procedures due to inadequate supplies (Conrad et al, 2012).

On the other hand clients have a part to play in ensuring compliance of FANC services. For instance, their knowledge and attitude play a major role. In a cross-sectional study in Addis Ababa to determine whether previous use of ANC led to early booking in consecutive pregnancy, found out that previous ANC use was not a predictor for timely booking instead, clear information and advice on timely booking within the first pregnancy and planned pregnancy were most statistically significant factors. Major reasons given by respondents for late booking were perceived correct time, inappropriate advice by providers, time constraints, unplanned pregnancy, unaware of pregnancy, negligence and others (Tariku et al, 2010). Facility preparedness is a vital factor in provision of FANC. Such include, facility infrastructure, staffing, supervision and management, Information Education and Communication (IEC) materials, availability of equipments and supplies and measures of clinic preparedness. A quasi-experimental study carried out in South Africa and whose objective was to develop and test an improved and integrated antenatal care program for public sector clinics so as to increase the range and quality of services received by pregnant women and improve their reproductive health behavior and status and whose one of the tools focused on preparedness based on the above factors identified as essential for quality services, found out that all clinics had a protected client waiting area, toilets, and a working phone or short wave radio, and had electricity supply. Running tap water was not available in two intervention clinics, and number of consultation rooms per facility ranged from 2 to 11 (Chege & Askew, 2005). On the other hand a study carried out in District Health facilities in Dar es salam to determine adequacy of number of rooms and space, guidelines and checklists for provision of FANC, facilities for infection control, laboratory equipment for testing syphilis and availability of records and forms, found out that nurses were dissatisfied with the availability of these facilities (Yengo, 2009).

In developing countries, inaccessibility of health services comprises physical as well as economic and socio-cultural distance from the health facilities. Due to some cultural and religious restrictions, women face difficulties in approaching healthcare services. This is because women are not allowed to consult male health care providers, especially for maternity related problems (Choudhry, 2005). In Ghana as it is in Pakistan, religion, culture and ethnicity were said to influence the attitude of women towards pregnancy and modern health care. Pregnancy was considered a normal process and a physician's care therefore considered inappropriate even when problems related to pregnancy by standard western medicine practices developed (Lowdermilk, 2006). Similarly in Xiengkhouang Japan, a study on utilization of ANC services among women revealed that 93.4% of mothers had no time to visit ANC clinics, 83.8% reported to be in good health and therefore did not need attention, 74.3% said they were embarrassed to undergo the ANC procedures while 71.3% reported to live far away from ANC service centers (Yang et al, 2010). In Pakistan and Afghanistan where Maternal Mortality stands at 27.6% and 32.1% respectively and contributes second biggest proportion towards maternal mortality in the Asian region, has been related to a number of causes, mainly being due to illiteracy, lack of health education, lack of Trained Birth Attendants (TBAs), lack of health care services and insufficient access to health care services. A study in South Africa among primigravida revealed that unplanned and hidden pregnancies contributed to delayed initiation of antenatal clinic attendance and therefore leading to non-compliance. One main reason among the women with unwanted pregnancy was consideration to terminate pregnancy first, therefore leading to delay . Similarly multi-gravid women considered late commencement of ANC due to perceived reduced need for care as shown in Ghana (Anya et al, 2008), in Tanzania (Mrisho et al, 2009) and in Western Province- Kenya, (Eijk et al, 2006). All these studies revealed a reduction in ANC compliance with increase in parity. Among common reasons mentioned for late initiation of antenatal care was to avoid having to make several visits to the clinic and lack of money.

In a cross-sectional study to find out determinants of male involvement in the prevention of mother-to-child transmission of HIV program in Eastern Uganda, only 5% of men accompanied their spouses to the antenatal clinic. Men who had attained secondary education were more likely to have a high male involvement in ANC at 95% than those who had primary or no formal education (Byamugisha et al, 2010). This although was not found to be a determinant of ANC compliance. In conclusion, despite the broad consensus on what the content and quality of Focused Antenatal Care should be, it is generally recognized that the antenatal services currently provided in many parts of the world fail to meet the

standards recommended by WHO. Compliance to FANC and its benefits relies heavily on health workers Knowledge Attitude and Practice, (KAP) facility capacities in terms of availability of appropriate infrastructure, drugs and equipments, stationery such as guidelines, reference manual, registers and forms and clients attitude and practice. In the absence of most of the above, even with reduction in ANC visits, non-compliance will still be experienced. However a reduction in the number of FANC visits among pregnant women who have been confirmed to have no risks or minimal risks, together with quality care would therefore improve compliance as well as maintain good Maternal Health and the newborns health.

II. METHOD

Study site: Kisumu East District Hospital is an operational Public Health facility owned by the Ministry of Health (MOH) and headed by a Medical superintendent. It is located in Kisumu East, Winam Division, Northern Sub-location, within the Township. It has a bed capacity of 195. It offers various services including; ANC, Anti-retroviral Therapy (ART), basic and comprehensive emergency obstetric care preventive and curative in-patient and out-patient services such as Integrated Management of Childhood Illnesses (IMCI) and Prevention Of Mother to Child Transmission (PMCT), laboratory services and radiology services. Kisumu is a regional capital and an administrative, commercial and industrial centre for the Lake Victoria basin. Situated on Lake Victoria, it developed due to its strategic location as an internal port and a railway terminus. Its rich endowments, such as the lake itself and fertile agricultural land, gave rise to a thriving economy that provided employment opportunities in various sectors such as the fishery industry and large-scale production of molasses, cotton, rice and sugar. According to the 2009 census, Kisumu District had a population of 968,803. The population growth rate is relatively high given the available resources in the District. Life expectancy for women is rated at 55 while men at 53 years (Yang et al., 2010). The district experiences high fertility with Total Fertility Rate (TFR) standing at 5.8 children per woman. Approximately a third of the 85,000 households in Kisumu East District are headed by a woman (GoK, 2009). Women of reproductive age (15-49) represent 27 percent of the total population, and 23 percent of these women are under the age of 20. The populations dependency ratio is at 1:1.18. There is a low labour force (15-64) in Kisumu East District which is estimated at 227,821 people, half of whom are women. Unemployed females contribute 57 percent probably since majority of girls do not have secondary education or a university degree (Maoulidi & Salim, 2011). Consequently, women in Kisumu are mostly confined to lower-paying and lower status jobs such as food service and secretarial work. Food insecurity, growing urban poverty and the high prevalence of HIV/AIDS are key concerns. About 60% of Kisumu population lives in slums and over 15% have HIV/AIDS (KDSP, 2005-2010).

The average distance to health facilities is 5-8 kilometers making it difficult for most people to access health facilities especially from the rural areas. The doctor/patient ratio is 1:5,379. The most prevalent diseases include malaria, anemia, typhoid and HIV/AIDS. In 2008 Kisumu Municipality had the highest HIV prevalence rates in Kenya at 15%. Moreover, the prevalence rate among women (13.8%) was much higher than among men (8.4%) (GoK, 2009). Despite the larger Kisumu district having several health facilities that provide health services, several problems affecting reproductive health have been persistent. These include: Poor access to quality Reproductive Health services, high maternal morbidity and mortality, Poor quality services provided, low male involvement in Reproductive Health (RH) services and harmful traditional and health practices. (KDSP, 2005-2010). Most maternal deaths were due to obstetric complications such as severe bleeding, obstructed labor, malaria, and anemia, and many of these deaths are avoidable, for instance through a range of interventions administered by a skilled health provider equipped with adequate and effective supplies.

Study design: This was a descriptive-cross sectional study, the design, involved examining the compliance to FANC among pregnant women (prevalence) and the capacity of Kisumu East District Hospital in complying with the Focused Antenatal Care (FANC) components. Chi-square test was used to assess whether there was a difference in outcomes among the samples in relation to the variables under study and to determine whether the difference occurred by chance. All variables which were found with a p-value of < 0.05 were considered significant. The data were analyzed using the statistical package for social sciences (SPSS) Windows version 16.0. Compliance was measured by determining the prevalence of women who made 4+ANC visits, commenced ANC in the first trimester and received three basic components of FANC which were identified as; detection and management of conditions that could affect both the maternal and fetal wellbeing, prevention interventions and health education and counseling among selected clients.

Sampling: The study targeted pregnant women who were in the third trimester of pregnancy, although basically it included women who were 32 weeks (gestation) to those women who had delivered within 72 hours in the KEDH. All

clients who were included in the study had attended ANC at the facility from inception and were classified as those in need of basic care. Those women who had been identified as having co-existing complications were exempted since they needed to make more than 4 ANC visits and needed specialized care. All participants had to be in possession of an ANC card for verification of the number and timing of visits as well as components received during the visits.

Sampling method and design: Systematic random sampling method was used. A sampling frame was extracted from a list of ANC and post-natal ward clients from which those women who possessed features similar to characteristics in the inclusion criteria were selected and listed. A total of 756 cases were listed and Kth case calculated by dividing the total number of cases by the sample size (258), which gave a sampling interval of three. The first case for inclusion was identified by simple random selection.

Sample size was determined according to the formula cited by Yamane (1973) in cases of finite population.

$$n = \frac{N}{1 + N(e)^2}$$

Where n = required sample size

N = Population sample of pregnant women in the third trimester till delivery period in the year ended July, 2011 to June 2012.

Therefore N = 1750

e = precision level (0.05)

$$n = \frac{1750}{1 + 1750(0.05)^2}$$

$$= \frac{1750}{1 + 1750(0.0025)}$$

$$= 304$$

The sample size was then reduced to 258 clients since the target population was below 10,000 as shown in the formula below.

$$N = 1 + \frac{n}{N}$$

Where n = sample size and N = population sample

$$= \frac{304}{1 + \frac{304}{1750}}$$

$$= \frac{304}{1 + 0.175}$$

$$= 258 \text{ clients}$$

Ethical consideration: Before the study implementation, clearance to conduct research was obtained from the Great Lakes University Ethical Review Committee and submitted to Kisumu East District Hospital Medical superintendent, ANC/MCH head of department and ward 1 in-charge. Departmental heads and participants from which data was to be obtained were then informed on the aim, process and duration of the study. Anonymity was observed whereby clients were accorded codes. In addition, the respondents signed a written informed consent form to show acceptance for inclusion into the study and were assured of confidentiality of all information provided whereby the principal researcher maintained sole access to information collected.

Data collection : The instruments for collecting data included; exit interview questionnaires and key informant interviews, clinic inventory and ANC records review as well as direct observation. Data was collected through quantitative and qualitative approaches to fully capture complimentary data. The quantitative data was extracted from closed ended and open ended questionnaires administered to clients while qualitative data was extracted from the in-depth interviews with the Key Informants for the purpose of data triangulation so as to increase the validity of the study. WHO- 2002 checklist was used to guide on timing and components of FANC.

Through interviews with the key informants, observations and review of clinic records, the capacity of Kisumu East District Hospital in providing FANC and the practice was captured. Such included; information on infrastructure, staff knowledge, perception, logistics for drugs and supplies, type of services provided, equipment and essential drugs supply was obtained. Client questionnaires were used to get information on pre-disposing characteristics and services satisfaction, as well measure the association between predisposing factors, enabling factors and need factors to

compliance to FANC. After adapting questionnaire from the Characteristics translated from WHO-2001 checklist into a simplified modified form and approved by the supervisors, the data was collected according to the following steps; the researcher contacted the Medical Superintendent of KEDH and introduced herself and also described the objectives, target respondents, and benefits of the study. In addition the researcher submitted the letter of request to perform the study from GLUK Research Ethical Committee (GREC) which was then copied to relevant departmental heads for support. The researcher together with two other trained research assistants then personally delivered the questionnaire to clients who had been identified among the third trimester women and including those who had delivered within seventy two hours in Ward one. Contact information of the researcher was provided in case of follow up questions if they had any. The completed questionnaires were then returned to the principal researcher for verification and analysis. The questionnaires administered were divided into several sections based on the operational framework. It covered demographic and socio-economic information of women such as age, marital status and financial status, past and present Antenatal history such as parity and previous use of ANC service, KAP on FANC by clients, elements of FANC offered at the KEDH health facility as compared to WHO checklist, such as history taking, investigations and interventions received as well as information provided to women during visits.

KIIs constituted 2 nursing officers from the ANC clinic, one nursing officer in-charge labor ward / post-natal unit and the Doctor in-charge of labor ward. They were purposely selected due to their roles in the department and familiarity with the clients. Number of visits were grouped into options of either being insufficient visits (1-3) or as sufficient visits (4+). Against each visit, components received/ delivered were verified/ determined and the specific period within which each component was received. Where primary data was used, evidence of an ANC card was mandatory. The data collectors (research assistants) were trained on aims of the research, contents, methods and relevance of the questionnaires. Questionnaires were pre-tested among twenty clients who attended clinic in Maseno Division and had the same inclusion criteria characteristics between 2nd and 7th of September, 2012

Data processing and analysis: Quantitative data was edited by cross reading all questionnaires to ensure that all information was captured during data collection and that the data was consistent. Data entry and cleaning using Microsoft EXCEL 2007 and by running cross-tabulation respectively for accuracy. SPSS version 16 was used to analyze data. Qualitative data from the Key informant Interviews and observations were subjected to content analysis, edited, compiled. Important aspects of FANC as well as written transcripts from each interview was done. The identified themes and sub themes which emerged from each interview were reviewed and similar themes were grouped together. Significant statements for each theme were identified, correlated/ harmonized and triangulated into the Quantitative data to give in-depth analysis of the compliance of FANC at KEDH into thematic coding for subsequent analysis.

III. RESULTS

Table 1: FANC components received during the four visits

FANC component received	No.	Percentage (%)
1st ANC visit		
History taking and Clinical examination	61	75.3
Hb test	64	79.0
Blood pressure taken	78	96.2
Obstetric examination	75	93.8
Maternal weight/ height	80	98.7
Syphilis test	75	92.5
Blood type & RH	81	98.7
Tetanus toxoid	58	71.6
Iron/folic supplements	51	63.0
ITN given	13	16.0
De-worming done	0	0.0
2nd ANC visit		
History taking	46	56.7
Clinical examination for anemia	62	76.5
Obstetric examination	73	90.1

Blood pressure taken	81	100
Maternal weight (only for women with underweight in the first visit)	81	100
Urine test (when there is need)	18	22.2
Iron/folic supplements	41	50.6
Recommendation for emergencies	40	49.3
Hb test done	29	35.8
Tetanus Toxoid given	38	46.9
Instruction for delivery plan	62	76.5
Recommendation for lactation/contraception		
Recommendation On nutrition	43	53.0
ITN given		
IPT	29	35.8
De-worming done	8	9.8
	73	90.1
	25	30.8
Third ANC visit		
Obstetric examination	73	90.1
Blood pressure taken	79	97.5
Maternal weight taken	81	100
Urine test for protein	24	29.6
Iron/ folic given	27	33.3
Recommendation for emergency	46	56.7
Hb request done	25	30.8
Tetanus Toxoid given (2nd dose)	29	35.8
Instruction for delivery plan	46	56.7
ITN given		
IPT	14	17.2
De-worming done	79	97.5
	18	22.2
Fourth ANC visit		
Instruction for lactation/contraception	46	56.7
Detection abnormal presentation of the fetus	67	82.7

Table 1 above showed that the majority of women who visited ANC at least 4 times received the three components in varying proportions. Detection and management of infections such as history taking and clinical examination of pregnant women was high in the first visit (75.3%) then reduced in the consecutive visits. Similarly, obstetric examination was high in the first visit (93.5%) and reduced with follow-up visits. However maternal weight measurements, blood pressure measurements and Intermittent Presumptive Treatment for Malaria (IPT) were constantly high throughout all the visits. On the other hand, interventions such as iron/ folic supplements, de-worming drugs and nets (ITNs) were the least administered therapeutic interventions in the facility. The study found 35 clients only to have received ITNs and 43 to have received de-worming drugs out of 81 who made 4+ ANC visits. It also revealed that health education and counseling on delivery plan, obstetric emergency, lactation and contraception were averagely administered ranging from 49.3% to 56.7%. The most common danger signs reported to have been mentioned by the health care provider to the pregnant women included; vaginal bleeding, headache/blurred vision, convulsions or fits and movement of fetus. However, the study revealed that only 14 (16.0%) women acknowledged to have had a detailed inquiry and education made into these danger signs during history taking on all the visits. Providers did not inquire at all into the danger signs in pregnancy for 84.0% of clients during ANC visits.

Figure 1. Parity versus 4+ ANC visit.

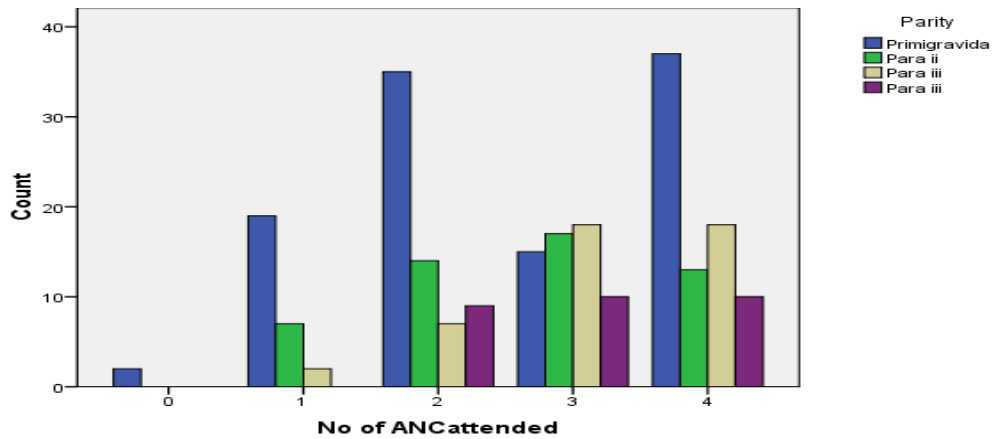


Figure 1 above shows that prime-gravida’s were more compliant to 4+ ANC visits than their counterparts.

Figure 2. Marital status versus 4+ ANC

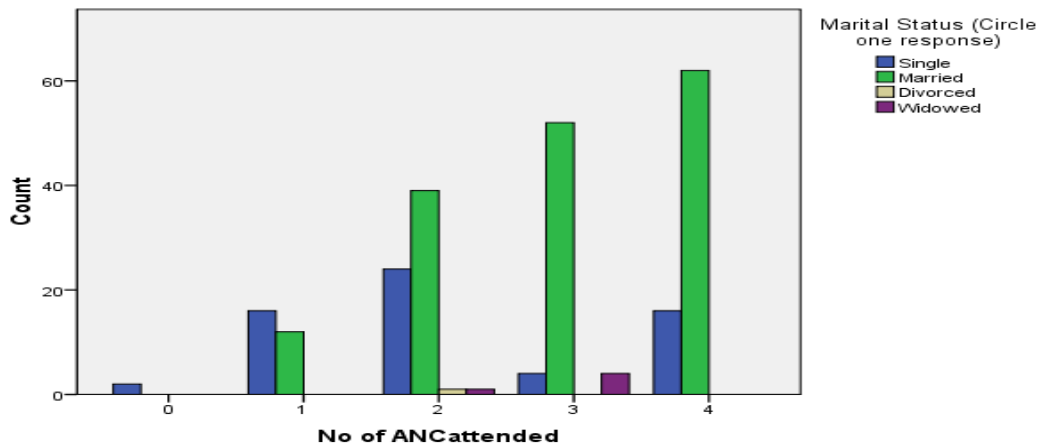
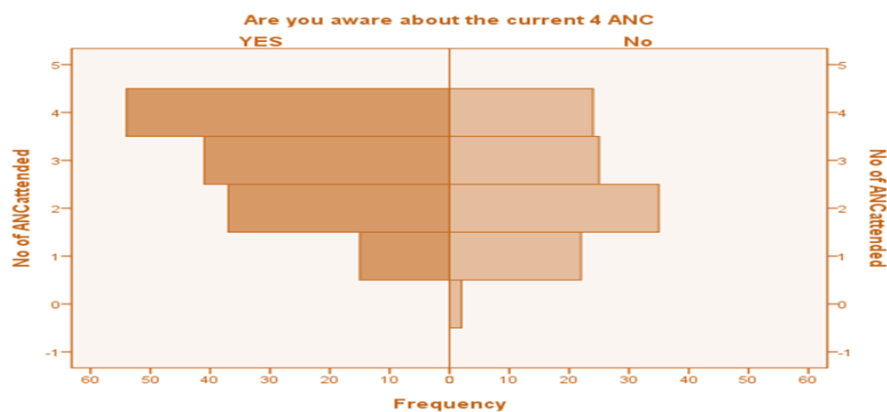


Figure 2 above shows that those pregnant women who were married had better compliance to 4+ ANC visits than those who were single or divorced, although these were found to be insignificant predictors of ANC compliance.

Figure 3: Awareness versus 4+ANC visit



Due to low awareness among clients, perception could not be adequately measured. However the study revealed that Health Care Providers preferred a monthly visit as it were with the former ANC, since they considered Kisumu a Malaria endemic zone. The study also revealed that majority of pregnant women still perceived FANC as a hectic and unnecessary means of improving health but instead looked forward for a less strenuous ANC in terms of number of visits and cost. One client had this comment;

“We know of women who don't make any visit to the hospital during pregnancy, yet they give birth to healthy babies.

The findings suggested that partners could sometime have a positive influence, for example when encouraging women to seek ANC, but more often it was negative. Like many partners from old generation, partners were considered to have less knowledge on FANC and as such could not promote use and compliance to FANC themselves. The main factors associated with partners not supporting ANC were expectations regarding pregnant women fulfilling their household duties, perceptions that ANC was not beneficial based largely on their common perception and the scarcity of resources. The researcher's Observations and informal conversations showed that the FANC guidelines did not play a big role in guiding the routine FANC service of the health workers. The facility acknowledged not having the classification form as well FANC guidelines. However, ANC cards provided an important guiding tool for them. Health workers used the card as continuous patient documentation and registered personal information, physical examinations, laboratory tests, and drug and health education delivery, even though some necessary information was not documented in the ANC card. Awareness of FANC (OR=3, CI=1.6-5.5) was found to be an insignificant determinant of 4+ although it was significant in early ANC commencement. However, positive awareness of FANC's existence was found to be 1.9 times more likely to contribute to higher 4+ visits to the clinic than lack of awareness. However this study revealed that awareness of the new FANC model was still low as much as those who had awareness of 4+ANC visits were more (56.9%) than those who lacked awareness (43.1%) (Figure 5) On the other hand, Advice for or against ANC was found to be insignificant predictor of FANC compliance.

IV. DISCUSSION

In this study, it was evident that Focused Antenatal Care awareness was still low at 56.9% making its compliance to be low. Respondents who were aware of FANC were more likely to commence ANC in the 1st trimester and adhere to the 4+ visit than their counterparts who lacked awareness. However the majority of respondents confessed that the ANC booklet was their main source of awareness. This finding contradicts the study conducted in Nigeria which suggested that pregnant women who were advised by physicians complied with early ANC booking (Okunlola et al, 2006). This suggested that proper information and advice on pattern of ANC utilization from service providers has an important role in compliance to FANC.

Regarding the perception of clients on FANC in KEDH, this study confirmed an imbalance between women's knowledge on requirements and reception of FANC. The implication would mean inadequate public awareness on FANC by the Government. On the other hand Key Informants rated themselves higher in comparison to WHO-2002 requirement in relation to the number of visits and intervals of visits as well as some components offered. There appears to be a disconnect between providers of FANC in KEDH and WHO requirements for the quality and quantity of FANC provided and the clients' needs which could imply that the new ANC has not been embraced by the local health providers. This findings contradicts results that were obtained in the study conducted in public hospitals in Harare, where the assessment showed that staff wished women made fewer visits to ANC clinics (Munira et al, 1997). Overall satisfaction with FANC service at KEDH in the researchers view was based in comparison to other health facilities and not quality of components and as the majority of clients reported that care offered in KEDH's ANC clinic was good, it is not satisfying as compared to the new WHO-2002 requirement. In conclusion, this study identified important gaps in rendering ANC service within KEDH such as poor infrastructure, inconsistent supply of drugs and laboratory equipments, lack of knowledge on FANC and poor attitude among pregnant women. It is hoped that these information will lead to improving institutional capacity and allow for psychological, physiological and social concerns to be addressed and hence improve the quality of FANC offered.

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