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Quality of Antenatal Care Offered at Nambale Sub County, Busia County

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Abstract

Background: Focused Antenatal care (FANC) is personalized care provided to a pregnant woman which prepares her for childbirth and readiness for complications. It provides health promotion and preventive health services, including nutritional support and prevention and treatment of anemia; prevention, detection and treatment of malaria, tuberculosis and sexually transmitted infections (stis)/HIV/AIDS; and tetanus toxoid immunization.

To ensure antenatal care (ANC) quality at health facilities, it is necessary that drugs and equipment are available, that health workers are available and have the necessary knowledge and skills, and that they actually provide the recommended interventions. Effectiveness of the antenatal care services provided depends on the quality of care provided during each antenatal care visit

The percentage of women attending ANC at least once generally tends to be satisfactory even in low income countries but maternal and neonatal mortalities remain high. In Kenya, for example, 9 out of 10 women reported to have seen a skilled provider at least once for their most recent birth, while maternal mortality is estimated at 400 maternal deaths per 100,000 live births, and neonatal mortality at 22 neonatal deaths per 1,000 live births.

Methods: The study was conducted in Nambale Sub County of Busia County in Kenya. This was a facility based cross-sectional study where 8 health facilities were surveyed for the availability of staff, infrastructure, and essential equipment and drugs necessary for the delivery of good quality antenatal care. Interactions between antenatal clients and midwives were observed, and exit interviews conducted for women. In addition, in-depth interviews with respective facility managers and one Midwife from the same facility who usually works in the ANC clinic.

Findings: A total of 334 women were interviewed. Preparedness of health facilities was good in terms of infrastructure, essential equipment, and availability of essential medicines. However, Job aids and laboratory supplies were unavailable in most health facilities. Case load indicators were low.

Women did not receive standard recommended care in the following areas: pelvic exams (99.4% missed opportunities); physical examination (91.9% missed opportunities); and client counseling and education (97.4% missed opportunities). Of the women interviewed, 33.7% felt that waiting time wasn't fair. Only 2.7% of the clients were accompanied by a relative (mother or mother in-law) to the clinic .

Staff shortage and lack of essential drug supplies were identified by staff interviewed as key challenges. They also said that additional nurses would help improve ANC services.

Discussion: Whereas health facilities in nambale sub county were adequately equipped to provide standard antenatal care in terms of infrastructure, availability of essential equipment, and medicines, they lacked job aids and did laboratory supplies. This was evident from the low number of pregnant women who had undergone the requisite tests (hemoglobin test, syphilis test, HIV test, malaria test and urine analysis) (19.5 %) and non-adherence to prescribed standards of care as seen in the high number of missed opportunities.

Clients were uncomfortable with the long waiting times while the midwives thought they were overworked. However, case load indicators for the facilities were very low (0.3 to 4.6) compared to the national average in public hospitals of 8.7 patients per provider per day and 10.4 patients per provider per day in private hospitals. The need for additional staff should be assessed and implemented on a case-by-case basis.

Only 2.7% of the clients were accompanied to the clinics by female companions. None had a male companion (table 5).partner participation in antenatal care has been shown to help to ensure a fuller and safer reproductive health experience for the woman, her newborn, and her family.

Conclusion: There is need to improve facility preparedness to offer antenatal services by making available laboratory supplies and job aids in addition to other important supplies. Staff supervision should be enhanced and they should be given opportunities for regular, appropriate refresher courses to ensure patients get standard services within reasonable time.

Key words: Quality of antenatal care; antenatal care; case load index; health facility cross sectional survey; direct observation study

Introduction

Antenatal care is the care a woman receives during pregnancy so as to help ensure healthy outcomes for women and newborns.

The current approach to antenatal care emphasizes quality over quantity of visits [1,2] . This means that providers focus on assessments and actions needed to make decisions, and provide care for each woman's individual situation. The result is fewer visits for the women to the clinic as opposed to the traditional antenatal care that uses a risk approach with its more frequent visits which does not necessarily improve pregnancy outcomes [3]. Interventions done in focused antenatal care (ANC) include [3];

i. health promotion and disease prevention,

ii. early detection and treatment of complications and pre-existing health conditions, and

iii. Attention to birth preparedness and complication readiness.

An estimated 52% of all maternal deaths and 49% of all under-5 deaths occur in the sub-Saharan Africa region [4] .

The percentage of women attending ANC at least once tends to be satisfactory but maternal and neonatal mortalities remain high [5]. In Kenya, for example, 9 out of 10 women reported to have seen a skilled provider at least once for their most recent birth in the five year period before the latest Kenya Demographic Health Survey, while maternal mortality is estimated at 400 maternal deaths per 100,000 live births, and neonatal mortality at 22 neonatal deaths per 1,000 live births [6]. This weak relationship between ANC use and maternal and newborn survival has motivated a recent focus on content and quality of care provided rather than just mere ANC attendance as we aim at achieving Sustainable Development Goal (SDG) number 3. Little conceptual work has been done on measurement of ANC quality at health facilities, although availability of antenatal clinic interventions is a prerequisite for women receiving good quality care. In particular, it is necessary that drugs and equipment are available at the facility, that the health workers are present and have the necessary knowledge and skills, and that they actually provide the recommended interventions [5].

Patient satisfaction is linked to the quality of services given and the extent to which specific needs are met. Satisfied patients are likely to come back for the services and recommend the services to others. Various factors including attitude of staff, cost of care, time spent at the hospital and doctor communication have been found to influence patient satisfaction in previous studies [7]. Between a third and a half of maternal deaths are due to causes such as hypertension (preeclampsia and eclampsia) and ante partum hemorrhage, which are directly related to inadequate care during pregnancy [8]. Quality is very difficult to measure because of its intangible nature. In this study, quality of care was measured as the proportion of patients receiving recommeded components of care [3, 9] and also the availability of essential equipment and medicines in the health center.

In the County of Busia, where Nambale is located, 97.6% of the mothers received antenatal care from a skilled provider. However, only 58.5% of these women were delivered by a skilled provider. This means that 41.5% of those that received ANC care did not deliver in hospital with the help of a skilled provider. This may have resulted from several factors among which could be the quality of care these women received during pregnancy at the ANC clinic. It is important that equipment and medicines are available at any health center offering ANC services, that health workers are not only present but they have requisite knowledge and skills to provide the recommended interventions [5].

Therefore, the weak relationship between ANC use and maternal and newborn survival on one hand and the low rates of hospital deliveries may be a pointer to the quality of antenatal care offered.

Our objectives were as follows:

1. To assess whether health facilities in the Sub-County were equipped to provide standard antenatal care.

2. To assess whether women seeking antenatal services in the facilities received standard recommended care.

3. To ascertain satisfaction with the quality of ANC services among pregnant women in Nambale sub-county.

4. To identify what the health workers perceived as challenges while offering antenatal services & their suggestions on improvement.

The study therefore sought to identify gaps in the antenatal clinic service delivery and to establish whether care offered was standard according to the WHO guidelines on antenatal and child birth care [3,10]. This is because good antenatal care will ensure better outcomes for both mother and baby.

Methods

Site

The study was conducted in Nambale Sub-County which is one of the seven sub-counties that make up Busia County. It has an area of about 237.9 square kilometers and had a population of 110,148 in 2015. The sub county is served by eight health facilities, namely Nambale, Madende, Khayo, Igara, Lupida, Malanga, Lwanyange, and St. Clare.

Study population

The population targeted for this study was pregnant women who reside in the sub county and went for antenatal services in the eight health facilities within the sub-county. A sample size of 336 pregnant women was determined. This was then proportionately distributed among the health facilities in the sub county depending on the expected number of pregnant users in for the year 2015. In addition, all the eight health facilities were assessed for their preparedness to offer ANC services. Later, we conducted in depth interviews with midwives who had been working at the respective antenatal clinics for at least one year.

Study design

This was a facility-based cross-sectional study where each of the 8 health facilities were surveyed once for the availability of staff, infrastructure, and essential equipment and drugs necessary

for the delivery of good quality antenatal care. In addition, interactions between the antenatal clients and midwives were observed directly after getting verbal consent from them and exit interviews were conducted for women who were willing. All consecutive clients who came for ANC services and were willing to participate in the study were included until the sample size was achieved.

Later, in-depth interviews were conducted with one representative midwife from each facility.

Data collection

The study was carried out from February to May 2016. Approvals from IREC and the Busia county government were sought to carry out the study. Four research assistants who were midwives were recruited from outside the sub county to collect data. They were trained for two days by the investigator on the protocol and study procedures.

The following four strategies were used to collect data:

i. Health facility surveys

ii. Direct observation of client and the midwife interacting

iii. Exit interviews on clients

iv. In-depth interviews with health providers

Appointments were made for the first visits to each clinic and during these initial visits, the investigators accompanied the research assistants for purposes of familiarization with the staff and to explain our study objectives. On the first visits, we conducted facility surveys (Appendix A) and subsequently went back to collect the rest of the data on how the clients interacted with midwives (Appendix B), exit interviews (Appendix C), and in depth interviews with health care providers (Appendix D). It took an average of 3 to 4 days to collect data from women before the sample size was achieved in each health center.

A structured check list was used to interview the officer in-charge at each facility in order to determine their level of preparedness to offer ANC services. Data on staff were also collected, particularly on the number of nurses in the health center. This was used to calculate the case load index in each health facility. The case load index is defined as the number of outpatient visits (recorded in outpatient records) in the three months prior to the survey, divided by the number of days the facility was open during the 3–month period and the number of health workers who conduct patient consultations (this excludes laboratory technicians or pharmacy assistants etc.) [8]. An index of clinic preparedness was constructed using the following six indicators (Table 1 and 2)

i. Staff establishment in the facility,

ii. Availability of infrastructure

iii. Availability of guidelines, reference manuals, registers, forms, and ANC cards on site.

iv. Availability of essential equipment

v. Availability of essential drugs

vi. Availability of laboratory supplies

From this data, mean scores were computed for each indicator to give a composite score for clinic preparedness.

Whenever a client came in the health center's waiting bay, they were consented and given a flash card with her name and time of arrival. When her time to meet the midwife came, she was ushered into the examination room and the research assistant indicated time of entry into the room on the card she was given earlier. S/he then asked for permission to sit in the examination room and then quietly observed and listened to the two interacting. The research assistant documented what was observed onto the focused antenatal care check list (Appendix B) as "1" if observed and "0" if not. A total score for each patient was computed for each component (history taking, physical examination, laboratory investigations done, obstetric examination, drug administration, and client education & counseling) and the interaction was scored depending on what was observed as done for the client or omitted. We also noted whether the woman was accompanied or not by the husband or a relative.

Whenever the midwife-client encounter ended, the research assistant documented the time spent on the client's card.

Before exiting the hospital, each client was interviewed using a 5-point Likert scale (Appendix C)) with scores ranging from '5' meaning "Strongly agree" to '1' meaning "strongly disagree." Factor analysis was performed on these data.

At a later date, the Investigator held in-depth interviews with one health provider designated to work in the ANC clinic in each of the eight health facilities after obtaining Informed consent. This interview was guided by questions prepared earlier (Appendix D).

Data analysis

Descriptive statistics were computed to determine the extent to which recommended components of ANC services are provided to pregnant women attending ANC clinics in the study health facilities.

To assess the association of different independent variables with the outcome variable, bivariate analyses were carried out.

Multiple logistic regressions were done to identify the most important predictors of client satisfaction and to control for the confounding effect.

Qualitative data were categorized and analyzed thematically.

Categorical variables were summarized as frequencies and percentages. Association between categorical variables was assessed using Pearson's Chi square. T-test was used to assess differences between two independent groups for continuous variables.

Results

All the eight health facilities in Nambale Sub County were assessed for preparedness. Three facilities had no laboratory technicians' hence compromising provision of antenatal services. Case load indicators were very low in all health facilities (Table 1).

Table 1: Staff distribution and case load indicators in each health center

Health center	Type of health facility (Public or private)	Staffing			Number of ANC clients in the last 3 months	Case load indicator
		Nurses	Clinical officers	Lab technicians		
Nambale	Public	3	0	3	868	4.6
Igara	Public	2	0	0	174	3.9
Madende	Public	3	1	1	317	2.3
Khayo	Public	2	0	0	175	1.9
Lupida	Public	5	2	1	382	1.7
Lwanyange	Public	2	0	0	65	0.7
Malanga	Public	2	0	1	203	2.2
St. Clare	PRIVATE	2	0	1	38	0.3

NB: Case load index is defined as the number of outpatient visits in the three months prior to the survey, divided by the number of days the facility was open during the 3-month period and the number of health workers who conduct patient consultations (this excludes laboratory technicians or pharmacy assistants etc).

The average case load indicator in the public sector in Kenya is low at 8.7 patients per provider per day while the average case load indicator among private providers was 10.4 per provider per day. Shortage of health workers may cause the case load indicator to rise and potentially compromise service quality. Caseload indicators don't take into account staff absence rates. This may explain why staff members who are present at work felt that their true workload is higher than these numbers seem to suggest.

Preparedness of health facilities was good in terms of infrastructure, essential equipment, and availability of essential medicines (Table 2). However, Job aids (see definition below the next table 2) and laboratory supplies were unavailable at most health facilities.

One health center had all the Job aids required in the antenatal clinic while for the rest availability ranged from 50 – 75%. No health center had all the requisite laboratory supplies; the facility with the highest was a mission health center at 78% while the least was 33% at the Sub County referral hospital (Table 3).

We interviewed a total of 334 clients who came for antenatal clinic and were at different gestation periods.

Most clients were aged 20 – 29 years, married and were housewives. The level of education for most of the clients was primary level (72%). The average distance to the health centers from their homesteads was 2.5 Km. Twenty five percent of clients interviewed were primigravidas (Table 4).

Women did not receive standard recommended care in the following areas: pelvic exams (99.4% missed opportunities); physical examination (91.9% missed opportunities); and client counseling and education (97.4% missed opportunities). Of the women interviewed, 33.7% felt that waiting time wasn't fair. Only 2.7% of the clients were accompanied by a relative (mother or mother in-law) to the clinic (Table 5)

However, 99.2% were happy with services even though there were a lot of missed opportunities. Some respondents (64) suggested that the number of health workers (nurses) needed to be increased to make services faster. An improvement in water supply and sanitation was suggested by 25 respondents while 17 respondents wanted an improvement in waiting time (Table 6). Most clients felt that the waiting wasn't fair (33.7%) i.e. 12.4 + 21.3. However, clients were generally happy with services i.e. 61.2 +30.8= 92% (Table 7). Client satisfaction wasn't associated with the frequency of ANC visits, waiting time or consultation time i.e. The three factors had no influence on client satisfaction (Table 8).

Staff shortage and lack of essential drug supplies were identified by staff interviewed as key challenges. They also said that additional nurses would help improve ANC services.

Table 2: Health center preparedness to offer ANC services as rated by availability of infrastructure, Job aids, essential equipment, essential medicines and laboratory supplies

Health center	Infrastructure (max. score=6) N,(%)	Job AIDS (max. score=8) N,(%)	Essential equipment (max. score=8) N,(%)	Essential drugs (max score=10) N,(%)	Lab supplies (Max. score=9) N,(%)	Total score (Max score=41) N,(%)
Nambale	5 (83)	6 (75)	4 (50)	9 (90)	3 (33)	27 (65.9)
Igara	4 (67)	4 (50)	7 (88)	8 (80)	4 (44)	27 (65.9)
Madende	5 (83)	4 (50)	7 (88)	8 (80)	7 (78)	31 (75.6)
Khayo	4 (67)	4 (50)	6 (75)	8 (80)	2 (22)	24 (58.5)
Lupida	6 (100)	8 (100)	6 (75)	8 (80)	6 (67)	34 (82.9)

Lwanyange	6 (100)	6 (75)	8 (100)	10 (100)	6 (67)	36 (87.8)
Malanga	4 (67)	5 (63)	7 (88)	8 (80)	1 (11)	25 (61.0)
St. Clare	6 (100)	4 (50)	7 (88)	10 (100)	7 (78)	34 (82.9)

NB: A **job aid** is a repository for information, processes, or perspectives that is external to the individual and that supports work and activity by directing, guiding, and enlightening performance.

Table 3: Percentage distribution by respondents' socio-demographic characteristics is shown in the Table below.

Characteristic	**Frequency , %**
Age	
15-19	68/334, 20%
20-29	201/334, 60%
30-39	62/334, 19%
40-49	1/334, 0%
Missing	2/334, 1%
Marital status	
Single	47/334, 14%
Married	285/334, 85%
Missing	2/334, 1%
Occupation	
House wife	144/334, 43%
Merchant	65/334, 19%
Employee	16/334, 5%
Daily laborer	7/334, 2%
Farmer	75/334, 22%
Other	25/334, 7%
Missing	2/334, 1%
Education	
None	9/334, 3%
Primary	239/334, 72%
Secondary	67/334, 20%
Tertiary	17/334, 5%
Missing	2/334, 1%

Table 4: Respondents' distribution by parity

Number of deliveries (parity)	**Number of respondents (n)**
0	83/334, 25%
1	51/334, 15%
2	43/334, 13%
3	44/334, 13%
4	15/334, 4%
5	23/334, 7%
6	9/334, 3%
7	4/334, 1%
8 or more	59/334, 18%
Missing	3/334, 1%

Table 5: Proportion of respondents who received components of a given category in full

	Number of respondents (N=334)	**Coverage (%)**	**Missed opportunities (%)**
Comprehensive history taking	289	86.5	13.5%
Physical examination N, %	27	8.1	91.9%
Observations & clinical investigations	111	33.2	66.8%
Obstetric examination	309	92.5	7.5%
Pelvic examination	2	0.6	99.4%
Laboratory investigations	65	19.5	80.5%
Drug administration & immunization	52	15.6	84.4%
Client education & counseling	4	1.2	98.8%
Relative accompaniment	9	2.7	97.4%

Table 6: Respondents' suggestions to improve ANC services (multiple responses allowed)

Suggestions	**Number of respondents**
1.IMPROVE LABORATORY SERVICES	14
2.WAITING AREA SMALL	9
3.INCREASE HEALTH WORKERS	64
4.BAD HEALTH WORKERS' ATTITUDE	6
5.PROVIDE EQUIPMENT & SUPPLIES	16
6.IMPROVE WATER SUPPLY AND SANITATION	25
7.IMPROVE WAITING TIME	17
8.PROVIDE HEALTH EDUCATION	7
9.IMPROVE ON PRIVACY	4
10.HIGH COST OF SERVICE CHARGE	4
11.TWENTY FOUR HOUR SERVICE NEEDED	2
12.SATISFIED WITH SERVICES	9
13.OTHERS	4

Table 7: Level of clients' satisfaction on ANC services provided in public health facilities

Item	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean ± SD
Polite greeting	10 (2.95)	12 (3.54)	34 (10.03)	162 (47.79)	121 (35.69)	4.1 ± 0.93
Waiting time	42 (12.43)	72 (21.3)	49 (14.5)	103 (30.47)	72 (21.3)	3.27 ± 1.34
Waiting area	18 (5.31)	36 (10.62)	24 (7.08)	94 (27.73)	167 (49.26)	4.05 ± 1.21
Provider understandable	7 (2.06)	5 (1.47)	21 (6.19)	117 (34.51)	189 (55.75)	4.4 ± 0.84
Privacy during consultation	1 (0.3)	31 (9.2)	25 (7.42)	88 (26.11)	192 (56.97)	4.3 ± 0.97
Procedures done with cleanliness	5 (1.47)	4 (1.18)	28 (8.26)	109 (32.15)	193 (56.93)	4.42 ± 0.81
Clean latrines & adequate water supply	18 (5.31)	42 (12.39)	109 (32.15)	108 (31.86)	62 (18.29)	3.45 ± 1.09
Did you receive full information 7 education on pregnancy care	20 (5.9)	19 (5.6)	99 (29.2)	120 (35.4)	81 (23.89)	3.66 ± 1.08
Do you want to continue ANC clinic in this facility	2 (0.59)	4 (1.18)	27 (7.99)	142 (42.01)	163 (48.22)	4.36 ± 0.73
Will you recommend your friends & relatives to attend this clinic	1 (0.29)	6 (1.77)	20 (5.9)	128 (37.76)	184 (54.28)	4.44 ± 0.71
Are you happy with the services	2 (0.59)	(0)	25 (7.4)	104 (30.77)	207 (61.24)	4.52 ± 0.69

Table 8: Predictors of client satisfaction greater than the mean score among ANC

Predictor	Crude OR and CI	Adjusted OR and CI
Frequency of ANC visits (revisits (2+) vs. new visit)	1.28 (0.8 - 2.05)	1.25 (0.77 - 2.03)
Waiting time (20-40 minutes vs. < 20 minutes)	0.29 (0.06 - 1.39)	0.31 (0.06 - 1.52)
Consultation time	1.03 (0.65 - 1.63)	0.98 (0.61 - 1.57)

adjusted for age, marital status and education

Discussion

Whereas health facilities in Nambale Sub County were adequately equipped to provide standard antenatal care in terms of infrastructure, availability of essential equipment, and medicines, they were ill-prepared as most facilities lacked Job aids and did not have regular delivery of laboratory supplies. This was evident from the low number of pregnant women in the sub-county who had undergone the basic tests required (Hemoglobin test, syphilis test, HIV test, malaria test and urine analysis) (19.5 %) and non-adherence to prescribed standards of care as seen in the high number of missed opportunities. This was similar to a study in Ethiopia [11] where lack of reagents to perform VDRL test (Syphilis test), blood group and Rhesus factor test partly explained the problems observed in the provision of recommended care components. Shortage of equipment and supplies and inadequate capacity to deal with a large number of pregnant women was also noted in another study in Malawi [12] .

The number of missed opportunities was very high. This is not good for these women since some of them may end up making only one visit to hospital and hence miss out on some vital tests, advice or medication. Regular and relevant continuous medical education to remind them of the essential components of ANC and improvement in the supply system could help to improve the situation. Monitoring and supervision should also be implemented to remedy the situation[13] .

Both the nurses working in antenatal clinics and the clients expressed the need to have additional staff. In addition, clients were uncomfortable with the long waiting times while the midwives thought they were overworked. However, case load indicators for the facilities were very low (0.3 to 4.6) compared to a national average in public hospitals of 8.7 patients per provider per day and 10.4 patients per provider per day in private hospitals. Shortage of health workers may cause case load indicators to rise and potentially compromise service delivery. It is also important to note that the case load indicator doesn't take into account staff absence rates and this may explain why staff present at work may feel that their true workload is higher that these numbers suggest [14]. The county government should therefore address this by ensuring staff are available in their duty stations as required so as to alleviate patient suffering and

decreased workload on staff. The need for additional staff should be assessed and implemented on a case-by-case basis.

Ninety two percent of the women were happy with the services offered even though we could not establish reasons for this. This was higher than what was found in other studies that put it at 60.4% [15]. Only 2.7% of the clients were accompanied to the clinics by female companions. None had a male companion (Table 5). There is growing recognition that male partners should be actively involved in the care of women and newborns. Communication, participation, and partnership within/by the couple in seeking and making decisions about care help to ensure a fuller and safer reproductive health experience for the woman, her newborn, and her family [1].

Conclusion

In conclusion, there is need to improve facility preparedness to offer antenatal services by making available laboratory supplies and job aids in addition to other important supplies needed to deliver these services. Staff supervision should be enhanced and they should be given opportunities for regular, appropriate refresher courses to ensure patients get standard services within reasonable time.

There were several limitations to this study. First, non participatory observation of the interactions between clients and their service providers may have influenced the performance of health workers in a positive direction. But we needed to find out whether some procedures were actually done otherwise we may not know for sure since they were not recorded as done. In addition, the study included women irrespective of the number of antenatal clinic visits. This may have limited the interpretation or expectations for some women who may not have had enough exposure to the clinic to enable them make concrete judgments on perception and satisfaction. There may also have been selection bias because participation was voluntary. Finally, clients may have had a tendency to respond favorably during exit interviews.

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Declarations

There is no conflict of interest. Ethical approval for the study was given by the Moi University IRB- Institutional Research & Ethics Committee (IREC) and was granted a Formal Approval Number: FAN: IREC 1548 on 28th January, 2016.

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