

## Research Article

# Determinants of Focused Antenatal Care Uptake among Women in Tharaka Nithi County, Kenya

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*Background.* The health status of women is an important indicator of the overall economic health and well-being of a country. Maternal health is closely linked with the survival of newborns. For every woman who dies, about thirty others suffer lifelong injuries. Focused antenatal care is one of the interventions to reduce maternal morbidity and mortality. It recommends four targeted visits during pregnancy within which essential services are offered. The aim of the study was to assess the determinants of uptake of focused antenatal care among women in Tharaka Nithi County, Kenya. *Methods.* This was a descriptive cross-sectional survey. Stratified sampling was used to select the health facilities while systematic sampling was used to select the respondents. Chi square, Fisher's exact test, and logistic regression were used to analyse the data. *Results.* The level of uptake of focused antenatal care was slightly more than half (52%). The determinants of uptake of focused antenatal care are level of education, type of employment, household income, parity, and marital status of the pregnant women. *Conclusion.* Despite high attendance of at least one antenatal visit in Kenya, the uptake of focused antenatal care is proportionally low.

## 1. Introduction

The Sustainable Development Goals target a global maternal mortality ratio not greater than 70 maternal deaths per 100 000 live births by 2030. The maternal mortality is high in many countries to a point that in every minute a woman dies due to pregnancy related complications. Developing countries account for 99% of the global maternal deaths with sub-Saharan African region alone accounting for 62% [1]. Kenya's maternal mortality ratio is high at 362 maternal deaths per 100 000 live births. A ratio equal to or above 300 maternal deaths per 100 000 live births is considered high [1]. The Kenyan government at national and county level has put measures to improve maternal health. This includes setting up health facilities to offer perinatal care, training of staff, and provision of supplies. Policy guidelines have also been put in place for managerial and operational level.

Focused antenatal care (FANC) recommends that all health pregnant women should have a minimum of four scheduled comprehensive antenatal visits during pregnancy. It is guided by five principles which are quality of care rather than quantity of visits, individualized care, disease detection

contrary to risk categorization, evidence based practices, and birth/complication readiness. During their visits, women are counselled on topics such as birth preparedness, complication readiness, danger signs, nutrition, exclusive breast-feeding, and family planning. Women are also immunised against tetanus. They are tested and treated for anaemia, malaria, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), and sexually transmitted infections (STIs). The FANC model suggests that visits should take place before 16 weeks, between 16 and 28 weeks, at 28–32 weeks, and about 36 weeks [2]. Tharaka Nithi County is among the middle counties in uptake of focused antenatal care (FANC). Kenya is now governed through devolved units, counties. The uptake of FANC is the highest in Nairobi County at 73% while it is the lowest in west Pokot County at 18%. The uptake in the entire Tharaka Nithi County is 56%; it is lower in the subcounty of study (52%) [3].

## 2. Methods

*2.1. Study Design and Target Population.* A descriptive cross-sectional survey design was used. The target population was

women who had delivered within one year prior to the study. This was estimated to be 4732 per year [4].

**2.2. Setting.** The study was conducted in Tharaka subcounty in eastern province, Kenya. It is in Tharaka Nithi County. Most of the subcounty is rural. The subcounty covers an area of 1569.5 km<sup>2</sup>. It has a total population of 130,098 people; among them 67,211 are women [4]. The subcounty has one subcounty hospital, one mission hospital, one sub-subcounty hospital, two health centres, and twenty dispensaries [5]. The number of women of reproductive age is estimated at 31,547. The estimated number of pregnant women is 4732 per year [4]. Only 39.2 percent of the women in the subcounty deliver under skilled attendance. The average distance to the nearest facility is 7 km. Most of the subcounty does not have good transport network [5].

**2.3. Variables.** The dependent variable was focused antenatal care uptake which was dichotomised as “uptake” for women who attended the four targeted antenatal care visits and “nonuptake” for the women who attended less than four antenatal care visits. The independent variables were age, level of education, marital status, type of employment, household income, gravida (number of pregnancies), and parity (number of births).

**2.4. Sampling, Data Collection, and Data Analysis.** Stratified sampling was used to select health facilities. Systematic sampling was used where every 14th client attending maternal/child health clinic in the sampled facilities was interviewed. The calculation is as follows  $Kth = N/n$ .  $N$  is the target population which is 4732,  $n$  is the sample size which is 345.  $Kth = 4732/345 = 14$ . The first respondent was picked by randomly picking the attendance number that the mothers were given when they arrived at the clinic. Sample size of 345 was calculated by Kothari method [6]. Semi-structured questionnaires were used to collect data.

Data was entered into STATA version 11. Descriptive statistics and chi square at 95% confidence interval were used to test the association of the independent and dependent variables. The variables that had statistically significant association using chi square and Fisher’s exact test were subjected to logistic regression to generate the odds ratios. All results were interpreted as significant at a  $P < 0.05$ .

**2.5. Ethical Considerations.** Ethical approval was sought from Kenyatta University Ethics and Review Committee.

### 3. Results

Focused antenatal care encompasses at four targeted antenatal visits during the pregnancy period. The level of uptake of focused antenatal care is slightly higher than half (52%). Figure 1 shows the level of uptake of focused antenatal care.

**3.1. Factors Associated with Antenatal Attendance.** Women aged below 20 years were associated with least uptake (31%)

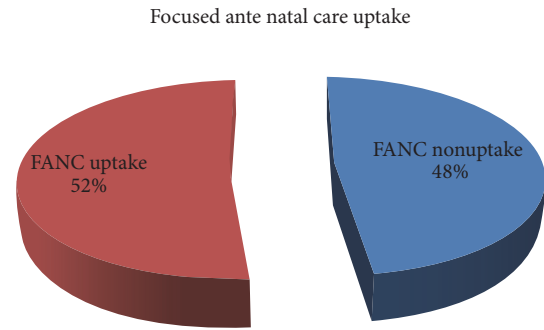


FIGURE 1: Uptake of focused antenatal care.

of FANC compared to women aged 30–34 years (63%). There was a significant association between FANC uptake and the level of education where women with secondary education had a higher uptake (78%) than those with a lower level of education. Having a partner during pregnancy was also associated with higher uptake of FANC (56%) compared with that of women without partners during the pregnancy period. Formal employment and more household income were associated with a higher uptake of FANC (90% and 77%, resp.). The number of pregnancies a woman has ever had and parity were associated with uptake of FANC where women with five or more pregnancies and births had the least uptake (33% and 31%, resp.). Table 1 shows the factors associated with antenatal attendance.

**3.2. Determinants of Attendance of Focused Antenatal Care.** A factor was deemed a determinant of focused antenatal care uptake if  $P < 0.05$  on logistic regression. The likelihood of uptake of focused antenatal care is increased almost four times by attaining secondary education (odds ratio = 3.9). Being married increases the likelihood of FANC uptake by almost three times (odds ratio = 2.7). A formal employment increases by 8 times the likelihood of FANC uptake. An increase in household income increases the likelihood of FANC uptake by 2 times. An increase in parity reduces the likelihood of attending four or more antenatal visits by 0.7 times visits. The influence of age and number of pregnancies (gravida) was not statistically significant. Table 2 shows the determinants of attendance of focused antenatal care.

### 4. Discussion

Focused antenatal care provides a platform to offer a variety of services to pregnant women. It is one of the main indicators of safe motherhood. It was critical to determine the main factors that influence its uptake. This study found the level of education to be a determinant of uptake of focused antenatal care. An increase in the level of education was found to increase the likelihood of FANC uptake. Education is one of the factors that influence utilisation of health services. Women with higher level of education were more likely to attend more antenatal care visits and earlier in their pregnancy. Education is associated with more appreciation of the importance of antenatal care [7]. Concurring findings

TABLE 1

Variable	Group	Nonuptake of FANC	Uptake of FANC	Statistical values
Age in years grouped	Below 20	22 (68.75%)	10 (31.25%)	$\chi^2(5) = 12.104^*$ $P = 0.033$
	20–24	50 (48.1%)	54 (51.9%)	
	25–29	33 (40.7%)	48 (59.3%)	
	30–34	21 (36.8%)	36 (63.2%)	
	35–39	26 (55.3%)	21 (44.7%)	
	40–44	14 (58.3%)	10 (41.7%)	
Secondary school	No	155 (52.5%)	140 (47.5%)	$\chi^2(1) = 15.975^{**}$ $P < 0.0001$
	Yes	11 (22%)	39 (78%)	
Presence of a partner during pregnancy	No	43 (68.25%)	20 (31.75%)	$\chi^2(1) = 12.52^{**}$ $P < 0.0001$
	Yes	123 (43.6%)	159 (56.4%)	
Type of employment	Nonformal	164 (50.1%)	163 (49.9%)	Fishers exact = 0.001**
	Formal	2 (11.1%)	16 (88.9%)	
Income group in kshs.	Below 1000	84 (61.3%)	53 (38.7%)	$\chi^2(2) = 23.27^{**}$ $P < 0.0001$
	1000–5000	70 (44.9%)	86 (55.1%)	
	Above 5000	12 (23%)	40 (77%)	
Gravida	1-2	93 (48.7%)	98 (51.3%)	$\chi^2(2) = 18.609^{**}$ $P < 0.0001$
	3-4	28 (32.1%)	59 (67.9%)	
	5+	45 (67.2%)	22 (32.8%)	
Parity	1-2	92 (46.9%)	104 (53.1%)	$\chi^2(2) = 16.742^{**}$ $P < 0.0001$
	3-4	31 (35.6%)	56 (64.4%)	
	5+	43 (69.4%)	19 (30.6%)	

\*Significant.

\*\*Highly significant.

TABLE 2

Variable	Odds ratio	P value	Confidence interval
Secondary education	3.925**	<0.0001	1.936–7.961
Marital status during pregnancy	2.779**	0.001	1.556–4.966
Type of employment	8.049*	0.006	1.821–35.567
Household income	2.184**	<0.0001	1.575–3.028
Parity	0.738*	0.032	0.560–0.973
Gravida	0.802	0.111	0.613–1.051
Age	1.028	0.711	0.886–1.192

\*Significant.

\*\*Highly significant.

were found in study in Mwingi district (Kitui County), Kenya, where women with secondary level of education and above were more likely to attend ANC than those with lower levels of education [8]. In a study in the same area (Tharaka Nithi County), education was also found to influence the place of delivery where women with higher level of education were more likely to deliver in a health facility than those with lower level of education [9]. It was also noted among women in Tharaka subcounty (Tharaka Nithi County, Kenya), birth preparedness was more likely among the more educated than

the less educated [10]. This implies education has critical influence on many aspects of maternal health.

The marital status of women was found to determine uptake of FANC. Married women were more likely to attend the targeted visits as recommended compared to the unmarried. Married women have been found to attend the antenatal visits earlier than the unmarried. This concurs with other studies by Simkhada and colleagues that found that married women were more likely to attend antenatal clinics than the unmarried. This is partially secondary to support from partners and social acceptability of pregnancy. This is thought to encourage attendance of antenatal care [7]. Adolescents and unmarried younger women hid their pregnancy to avoid social embarrassment. This delayed their initiation of antenatal care visits [11]. In a study done in Ethiopia, however, single or divorced mothers more likely attended focused antenatal care than mothers who were married [12].

The type of employment strongly influenced the uptake of FANC. Women in formal employment were more likely to attend the stipulated antenatal visits compared to those in nonformal employment. FANC uptake was influenced by the level of household income. Women from households with higher income had a higher uptake than those from low income households. The economic status of households and individuals is a determinant of uptake of health services. High cost has been found to be a prohibiting factor to use

of antenatal services. Women with high household economic status were noted to attend antenatal visits early and more frequently [8]. A lower wealth index was associated with underutilization of antenatal services in Indonesia [13]. This concurs with a Kenyan survey that found that women earning more than a dollar per day were more likely to attend at least four antenatal visits than those earning less than a dollar per day [8].

Parity is number of times a woman has given birth to a foetus above gestation of 24 weeks. The present study found that an increase in parity decreases the likelihood of uptake of FANC. This concurs with other studies that found that high parity has been found in many countries to be a barrier to utilisation of antenatal services [7].

## 5. Conclusion

Research has shown that the level of uptake of focused antenatal care is slightly above half of the respondents (52%). The main aim of the present study was to elucidate the determinants of focused antenatal care. This study concludes that it is critical to educate the girls in order to achieve the required uptake of focused antenatal care. In addition to education an increase in house hold income, securing more formal jobs, having support from partners during pregnancy, and reduction of the number of births (parity) lead to more likelihood of attending focused antenatal care.

## Additional Points

**Key Points.** (i) Focused antenatal care reaches only about half of the women of reproductive age. (ii) Tharaka Nithi County ranks among the middle performers of uptake of focused antenatal care. (iii) The determinants of focused antenatal care uptake are increased level of education, type of employment, marital status, parity, and higher household income.

**Recommendations.** (1) This study found that about half of the samples have low uptake of focused antenatal care. In addition to the current strategies for improving maternal health, it is recommended that Kenyan Ministry of health and county governments increases the awareness of focused antenatal care among women of reproductive age. (2) This study found that an increase in the level of education increases the uptake of focused antenatal care. It is therefore recommended that the relevant government ministries and nongovernmental organisations should increase the education of girls (future mothers). (3) This study found that an increase in household income and securing formal employment improves the uptake of focused antenatal care. It is therefore recommended that the relevant government agencies should put in place strategies to increase the household incomes and stimulate formal employment. (4) This study found that an increase in parity lowers the uptake of focused antenatal care. This study therefore recommends to ministry of health targeting women with high parity during sensitization on focused antenatal care. (5) Marital status was found to influence the uptake of

focused antenatal care. It is recommended that strategies to increase social support by the partners and relatives be put in place.

## Competing Interests

There was no conflict of interests in the study.

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