

# Prevalence of HIV among pregnant mothers receiving antenatal care at Kator Primary Health Care Centre, Juba, South Sudan

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## ABSTRACT

**Introduction:** The HIV/AIDS scourge remains a major public health threat in South Sudan particularly to the unborn children due to vertical transmission.

**Objective:** This study aimed to assess the prevalence of HIV among pregnant mothers receiving antenatal care (ANC) services at Kator Primary Healthcare Centre in Juba.

**Method:** The study used a cross-sectional design in which systematically selected ANC records of January to June 2021 were collected and analyzed using SPSS Version 16.0. Fisher's exact values were obtained to test for significance.

**Results:** The HIV prevalence rate among pregnant mothers receiving ANC services at Kator PHCC was 2.25%. The modal age group was 21-25 years. HIV prevalence was highest among mothers who attained primary education or less, urban dwellers and married mothers in their 3rd trimester of pregnancy.

**Conclusion:** HIV prevalence among pregnant mothers receiving ANC services at Kator PHCC in Juba is comparable to the national average.

**Key words:** HIV/AIDS, prevalence, South Sudan, vertical transmission

## INTRODUCTION

The global fight against human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) is far from over. In 2020, out of 37.7 million people living with HIV, 1.5 million of these were newly infected and 680,000 HIV related deaths occurred.<sup>[1]</sup> Nine percent of global new infections were attributed to vertical transmission in 2017<sup>[2]</sup> and over 90% of HIV infections among children less than 15 years is attributed to mother-to-child transmission (MTCT).<sup>[3]</sup> Much as the global rollout of antiretrovirals (ARVs) has resulted into 47% decline in AIDS-related deaths since 2010,<sup>[1]</sup> over two thirds of the HIV burden is in the African region.<sup>[4]</sup> Also, 90% of children who acquire HIV infection through vertical transmission are from sub-Saharan Africa, yet maternal knowledge about MTCT is very low.<sup>[5]</sup>

In South Sudan the overall HIV prevalence is estimated at 2.7% with marked heterogeneity by demographic and socioeconomic status.<sup>[6]</sup> The pandemic is more concentrated in the Equatoria Region where prevalence is 6.8% in Western Equatoria, 3.1% in Central Equatoria, and 4.0% in Eastern Equatoria.<sup>[7]</sup> Children born to HIV positive mothers contribute the second highest percentage (15.7%), after clients of sex workers (42.6%).<sup>[6]</sup> The 2009 sentinel survey in all the 10 states of South Sudan showed HIV prevalence among women of reproductive age was 3% with those in the age group 15-24 accounting for 49.5%.<sup>[8]</sup> Controlling vertical transmission of HIV is a global target.<sup>[1]</sup> This study aimed to assess the prevalence of HIV among pregnant women attending the Antenatal Clinic (ANC) in Kator primary healthcare centre (PHCC).

**METHOD**

The study was conducted at Kator PHCC, a healthcare

facility located in Kator Payam in Juba City, Central Equatoria State providing general outpatient services including HIV, Tuberculosis and ANC services.

**Table 1. Socio-demographic characteristics and HIV status**

Variables (N =400)		HIV status			Total n (%)	p value
		Negative n (%)	Positive n (%)	Unknown n (%)		
<b>Age</b>	15-20	78 (89.7)	0 (0)	9 (10.3)	87 (21.8)	0.074
	21-25	118 (90.8)	2 (1.5)	10 (7.7)	130 (32.5)	
	26-30	102 (85.0)	3 (2.5)	15 (12.5)	120 (30.0)	
	31-35	44 (89.8)	3 (6.1)	2 (4.1)	49 (12.2)	
	36-40	10 (71.5)	1(7.1)	3 (21.4)	14 (3.5)	
<b>Education level</b>	Never went to school	67 (90.5)	3 (4.1)	4 (5.4)	74(18.5)	0.094
	Primary level	131 (84.0)	5 (3.2)	20 (12.8)	156 (39.0)	
	Secondary school	109 (89.3)	0 (0)	13 (10.7)	122 (30.5)	
	Post-secondary	45 (93.7)	1(2.1)	2 (4.2)	48 (12.0)	
<b>Occupation</b>	Housewife	236 (87.4)	3 (1.1)	31 (11.5)	270 (67.5)	0.064
	Business	40 (90.9)	3 (6.8)	1 (2.3)	44 (11.0)	
	Student	35 (89.7)	0 (0)	4 (10.3)	39 (9.8)	
	Unemployed	18 (90.0)	2 (10.0)	0 (0)	20 (5.0)	
	Salaried employee	10 (83.4)	1 (8.3)	1 (8.3)	12 (3.0)	
	Others	13 (86.7)	0 (0)	2 (13.3)	15 (2.8)	
<b>Marital status</b>	Single (never married)	9 (90)	0 (0)	1 (10.0)	10 (2.5)	0.295
	Married: monogamous	271 (88.8)	6 (2.0)	28 (10.2)	305 (76.2)	
	Married: polygamous	71 (85.6)	3 (3.6)	9 (10.8)	83 (20.8)	
	Others	1 (50.0)	0 (0)	1 (50.0)	2 (0.5)	
<b>Number of pregnancies</b>	One	91 (91.0)	2 (2.0)	7 (7.0)	100 (25.0)	0.757
	Two	75 (87.2)	1(1.2)	10 (11.6)	86 (21.5)	
	Three	73 (90.2)	1(1.2)	7 (8.6)	81(20.5)	
	Four and above	113 (85.0)	5 (3.8)	15 (11.2)	133 (33.2)	
<b>Residence</b>	Urban	342 (88.6)	8 (2.1)	36 (9.3)	386 (96.5)	0.096
	Rural	10 (71.5)	1(7.1)	3 (21.4)	14 (3.5)	
<b>Number of ANC visits</b>	One	103 (81.7)	0 (0)	23 (18.3)	126 (31.5)	0.001
	Two	81 (90.0)	3 (3.3)	6 (6.7)	90 (22.5)	
	Three	76 (89.4)	5 (5.9)	4 (4.7)	85 (21.2)	
	Four and above	92 (92.9)	1(1.0)	6 (6.1)	99 (24.8)	
<b>Trimester</b>	1st	26 (86.7)	1 (3.3)	3 (10.0)	30 (7.5)	0.292
	2nd	157 (86.7)	2 (1.1)	22 (12.2)	181(45.2)	
	3rd	169 (89.4)	6 (3.2)	14 (7.4)	189 (47.2)	
<b>Overall</b>		352 (88.0)	9 (2.25)	39 (9.75)	400 (100)	

A cross-sectional design was employed, and sampling was systematic; every 4th ANC record, from January to June 2021, was selected and reviewed. Sample size was estimated using Cochran's formula where the confidence level was 95%, 0.05 as the precision and z score of 1.96. Permission was obtained from the University of Juba, Central Equatoria State Ministry of Health and Kator PHCC while the researchers made sure no identifiers were included in the results in order to observe anonymity. Using SPSS Version 16.0, Fisher's exact test of significance was performed. HIV prevalence was estimated by dividing the total number of HIV positive mothers by the sample total size (400).

## RESULTS

### Socio-demographic characteristics

A total of 400 pregnant mothers who attended ANC at Kator PHCC were included into this study. The age group 21-25 years contained the highest number. Around 40% of the mothers obtained primary education and over two thirds were housewives (67.7%) and in monogamous marriages (76.2%). A third (33.2%) of mothers was pregnant for the fourth or more times and almost all mothers (96.5%) came from urban centres. There was a fairly even distribution of mothers among the recommended number of ANC visits although those in their first visit comprised a quarter (24.8%) of the records. Most of the mothers visited during their last trimester and just four mothers had recorded disability (Table 1).

### HIV prevalence

Of the 400 mothers who attended ANC at Kator PHCC, around 90% were tested for HIV, of which nine (2.25%) were positive (Figure 1). Of the nine positive cases, six were aged 26-35 years and more than half attained primary education or less. All nine cases were married, of which two thirds were in monogamous marriages and more than half were in their fourth or more pregnancy (Table 1)

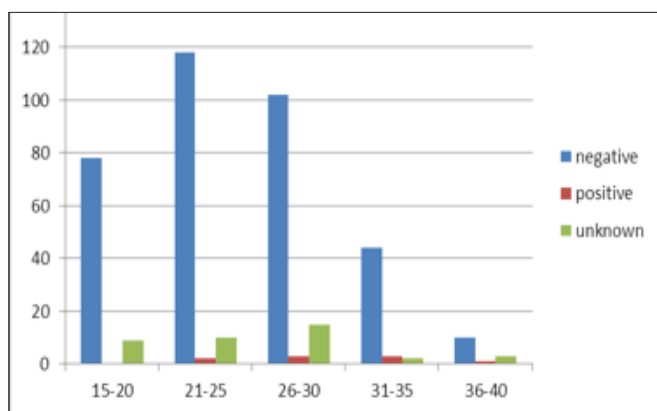


Figure 1. Variation of HIV status by age group

No statistically significant relationship was observed between age, educational level, occupation, marital status, and number of pregnancies, residence, trimester of pregnancy or disability and HIV prevalence. However, a statistically significant relationship was observed between the number of ANC visits and HIV prevalence (p value = 0.001).

## DISCUSSION

The prevalence of HIV among pregnant women attending ANC services at Kator PHCC is 2.25 %, slightly less than both the national average of 2.7 %<sup>[9]</sup> and the 3% reported in the 2009 sentinel survey.<sup>[8]</sup> It is also less than the Eastern and sub-Saharan African HIV prevalence among pregnant women which is 5.75% in Ethiopia, 5.6% in Tanzania and 22.5% in Zambia<sup>[10]</sup> while in Cameroon a 4.9% prevalence was reported among pregnant adolescents.<sup>[11]</sup> While our figure is marginally lower than the regional average, 225 HIV cases for every 10,000 pregnant women should be cause for alarm given the potential risks to the unborn child via vertical transmission. It is also challenging in light of the global vision of getting to zero new HIV cases.<sup>[12]</sup>

The number of ANC visits was associated with being HIV positive (p<0.005). This contrasts with other studies where age, number of sexual partners and consistent use of condom were likely factors for HIV infection in Cameroon<sup>[11]</sup> while education, residence and alcohol abuse were shown to contribute to HIV prevalence among pregnant women in Botswana.<sup>[13]</sup> Similarly a retrospective study that used a weighted sample of 46,645 women aged 15-49 years from 10 African countries, established that the key enablers for uptake of ANC services were higher education level for the partners, higher income, and availability of the services, while long distances to the facilities were identified as barriers.<sup>[3]</sup> Our finding could mean that those with health problems, including HIV, adhere more to subsequent ANC visits. It is also important to note that the records reviewed for this study were captured during the COVID-19 pandemic. This could also mean those with underlying conditions feared the consequences of the disease more and frequented the facility while the healthy ones feared unnecessary movements in the face of COVID-19 restrictions.

Also with many mothers turning up for ANC services late, opportunities for identifying potentially life-threatening conditions could easily be missed. Could this be attributed to attitudes? Mude and others, in a household survey on knowledge and attitudes among 9,061 women of child-bearing age in South Sudan, found that only 22% exhibited positive attitudes toward ANC.<sup>[14]</sup>

Another key finding is that the uptake of HIV services was 90.2%. Although this is more than the regional average

of 80.8%,<sup>[3]</sup> the 9.75% that failed to respond to testing, calls for more work to ensure that all pregnant mothers know their status to curb mother to child transmission (MTCT). Why a mother refuses to be tested when this concerns her child, is an unanswered question.

## CONCLUSION

This study underscores the unfinished battle against the HIV pandemic in the country in light of the global targets against the disease. HIV prevalence among pregnant mothers attending ANC services at Kator PHCC was 2.25 % which is comparable to the national average. The observed inverse association between the number of ANC visits and HIV prevalence could suggest that mothers who experience health problems adhere to subsequent ANC visits more. Sensitization of pregnant mothers on the benefits of early ANC visits is strongly recommended.

**Conflict of interest:** None

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