

**FACTORS ASSOCIATED WITH ACCEPTABILITY OF HIV TEST SCREENING
AMONG WOMEN RECEIVING POST ABORTION CARE AT JUBA TEACHING**

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**THIS DISSERTATION IS SUBMITTED IN PARTIAL FULFILMENT FOR THE AWARD
OF DEGREE OF MASTERS IN OBSTETRICS AND GYNECOLOGY**

DECLARATION

I hereby declare that this dissertation is my original work and to the best of my knowledge contains no materials previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree at the University of Nairobi or any other educational institution.

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DEDICATION

This work is dedicated to the vulnerable women in South Sudan who are suffering because of complications of abortion and HIV/AIDS

LIST OF ABBREVIATION

A&E	Accident and Emergency
AIDS	Acquired Immune Deficiency Syndrome
ANC	Ante Natal Care
ART	Anti-Retroviral Therapy
D&C	Dilatation and Curettage
D&E	Dilatation & Evacuation
ERC	Ethics and Research Committee
FP	Family Planning
HIV	Human Immunodeficiency Virus
JTH	Juba Teaching Hospital
KNH	Kenyatta National Hospital
MDGs	Millennium Development Goals
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MVA	Manual Vacuum Aspiration
PAC	Post Abortion Care
PITC	Provider initiated counseling and testing
SPSS	Statistical Package for Social Science
UON	University of Nairobi
VCT	Voluntary Counseling and Testing
WHO	World Health Organization

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ABSTRACT

Background: Knowledge of HIV in South Sudan is extremely low with 45 percent of women aged 15- 49 having ever heard about the virus. The country has a generalized national HIV prevalence of 3.1%. Clients seeking Post abortion care services accounts for over 50% of all gynecological admissions in Juba Teaching Hospital JTH, these patients are at risk of HIV and other (STIs) due to their exposure to unprotected sex. Currently HIV testing is not routinely offered as part of post abortion care services package in JTH. This is a disadvantage for these women, as this might be the only chance for some of them to get in touch with a health facility.

Objective: To determine factors that are associated with the acceptability of HIV testing among women receiving post abortion care (PAC) at JTH.

Methods: This was a cross-sectional study, conducted at the gynecological unit of the Juba Teaching Hospital in South Sudan. Three hundred and forty patients were recruited into the study and interviewed using a structured questionnaire.

Results: The mean age for the participants was 24.7 years, 50.6% aged <25 years, 86.2% were married, 31.5% were employed, and 31.8% had no any formal education. Acceptability of HIV testing was 70.9%. Patients aged >25 years and those with university education were more likely to accept the HIV testing. Employment status, religion, marital status and utilization of the various reproductive health services did not show a significant association with acceptability of HIV testing. About two thirds 77.1% of the participants had a prior HIV testing mostly for the purposes of antenatal care profile, and 53.2% were tested in hospitals. Patients previously tested

for HIV were more likely to accept the HIV testing. The most common reason given by the participants for not accepting the HIV testing was that they believe they were HIV negative based on previous HIV test results. Four participants had a positive test results. The study gave a HIV prevalence of 2.7%.

Conclusion: The acceptability of HIV screening among post abortion care patients at JTH is at 70.0%, this level is low if compared to the WHO 2020 target. Elderly women and those with university or college education were more likely to accept HIV testing. Women who had previously been tested for HIV were also more likely to accept testing, while other factors like employment, religion, and marital status did not show a significant association with acceptability of HIV testing. The study gave a HIV prevalence rate of 2.9% slightly lower than the country's prevalence rate which was set at 3.1%. It's also much low comparing to the prevalence rate in the Sub-Saharan Africa which has been estimated at 4.9% in 2011, thus South Sudan has a real task towards achieving the WHO 2020 target.

INTRODUCTION

South Sudan is one of the countries relatively hard hit by the impact of HIV/AIDS within sub-Saharan Africa today.¹ Ignorance and lack of knowledge about HIV is the domain in South Sudan with 45 percent of women aged 15- 49 having ever heard about the virus. Many more are scared to test because they think HIV is a death sentence and are unaware of the benefits of anti-retroviral therapy, culminating down the government and its partner's efforts to crack down on the disease.²

The continuous political instability in the country has resulted into displacement of many people, with the vast majority of the displaced people living in camps where HIV vulnerability and risk is thought to increase.³ Among the challenges faced by South Sudan to respond to HIV effectively are the limited access to services mainly due to the poor infrastructure and scanty human resources. It has been estimated that only 13% of pregnant women living with HIV have access to PMTCT in South Sudan, and AIDS related deaths have almost doubled between 2001 and 2012 (6,900 to 13,000) these figures are believed to be rising due to the ongoing conflicts and the displacement of populations.³

Since the primary mode of HIV transmission is mostly heterosexual, the attitude, life style and the irresponsible sexual behavior remains the most important causative factors for HIV infection and transmission. The government and its health partners have taken the primary responsibility of propagating messages that promote awareness and changes in high risk-taking behavior with the aim of curbing high HIV transmission rates.⁴

Women are disproportionately affected by the HIV epidemic in sub Saharan Africa like many parts of world as a result of social and economic inequality. In the year 2012, about 59 percent of all people living with HIV in the region were female.

Women and girls often face discrimination in terms of access to education, employment, and health care. In this region, men are often the final decision maker in a relationship, and as a result, women cannot always practice safer sex even when the risk is obvious. Indeed, gender base violence has been identified as a main player when it comes to HIV transmission in this region⁵.

Women seeking post abortion care services in Juba Teaching Hospital are considered at risk of HIV infection due to their exposure to unprotected sex, the hospital doesn't offer HIV testing as a routine for these women, and this is a missed opportunity for them to know their sero-status. Considering the above facts, this study aims at testing the acceptance of HIV counseling and testing by PAC clients in a view to integrate and offer a routine HIV testing to the post abortion care seekers in the hospital and other facilities within South Sudan.

LITRATURE REVIEW

The global HIV prevalence had shown a slight decline in the recent years. Since the realization of the HIV epidemic 3 decades ago, around 78 million people have acquired HIV infection and 39 million people have died of AIDS related illnesses. In the year 2013 the number of people living with (PLHIV) was estimated to be 35 million. The rate of new HIV infection dropped by 38% from 3.4 million in 2013 down to 2.1 million in 2011. AIDS related deaths have fallen by 35% since the peak in 2005. In the year 2013, 1.5 million people die from AIDS related causes worldwide compared to 2.4 million in 2005. In regards to antiretroviral therapy, around 12.9 million people living with HIV had access to antiretroviral therapy in 2013, this represent 37% of all people living with HIV.

The number of people living with HIV in the Sub Saharan Africa was estimated to be 24.7 million in the year 2013, and women account for 58% of this number, and there were an estimated 1.5 million new HIV infections in the same period. The region had witnessed a decline in new HIV infections by 33% between 2005 and 2013, yet the region accounts for almost 70% of the global total of new HIV infections, with an estimated 1.1 million people die of AIDS-related causes in the year 2013.

In the year 2015, estimates showed about 36.7 million people were living with HIV worldwide. New HIV infection in 2015 was estimated at 2.1 million and AIDS related deaths at 1.1 million. Treatment coverage was 37% of all people living with HIV in Sub Saharan Africa. All these figures are slightly lower in comparison to figures from 2013 indicating very slow improvements. In the year 2013 it was estimated that 67% of men and 57% of women living with

HIV were not receiving ART in sub Saharan Africa.⁶South Sudan as part of the sub Saharan Africa countries is also affected by the impact of HIV/AIDS. The country is faced with a generalized national prevalence of 3.1%, this translate to about 150,000 people living with HIV among these, 79,000 are women aged 15 and above. There is an estimated 13,000 new infection annually.¹

Abortion is defined as the termination of pregnancy either spontaneous or intentionally, before 20 weeks of gestation or before the growing fetus could attain the weight of 500 grams.⁷ Complications of abortion accounts for about 13% of maternal deaths worldwide and as much as 25% in some developing countries.⁸And they are among the commonest causes of admissions to the gynecological wards.

Knowledge of personal HIV status offers significant benefits to those infected while Ignorance of HIV status in health care setting can lead to substandard medical care.⁴HIV testing and counseling is a critical first step for people to know what action they should take to prevent getting infected or transmitting HIV infection and to gain access to proper medical treatment for HIV disease and AIDS. The process of HIV testing must be followed by the provision of the result, and the client to receive appropriate post-test information and counseling.¹⁰

According to a Cochrane systemic review and meta-analysis results, rapid VCT was associated with a threefold increase in HIV- testing uptake (RR=2.95, 95% CI 1.96 to 5.16) and a twofold increase in the recipient of test results. Women accepted testing more often than men in rapid

VCT arm, but no differences in effect for age or socio-demographic status. Observational studies also showed rapid VCT led to higher rates of uptake of testing.¹¹

In a study conducted in the United States to understand the rates and determinants of counseling and testing acceptance in facilities that provide perinatal, family planning, gynecology, sexually transmitted diseases (STD) and drug treatment services as well as hospitals and prisons. The acceptance rates was found to be varied widely (3-100%) even with settings of the same type. Acceptance was generally higher >50% among persons at high risk for acquiring or transmitting the infection (STD patients, pregnant women at high risk) than among low risk persons. Factors associated with high acceptance rates include the client's perception of HIV risk, acknowledging risk behaviors; confidentiality protection; presenting counseling and testing as 'routine' rather than optional; and provider's belief that counseling and testing will benefit the client. Factors that were found to be associated with low acceptance rates included prior HIV testing, fear about coping with results, and explicit informed consent.¹²

A systemic review of literature on HIV testing barriers in Europe had described a range of barriers including, low-risk perception of the infection; fear and worries; accessibility of health services; reluctance to address HIV and to offer the test, and scarcity of financial and well trained human resources.¹³

In the Sub Saharan Africa, many more adults would accept VCT, and may clearly express the desire to learn their HIV sero-status when given the opportunity.

Though the traditional VCT systems is the most available method for HIV testing, this method had got some drawbacks which limits people access to it, these includes Stigma, fear of receiving HIV positive status, lack of confidentiality, long distances to VCT sites, and long delays in returning HIV test results. Alternative VCT delivery models, such as mobile VCT, routine offer of VCT and home-based VCT can be adopted as they've showed a significant increase in access to and uptake of VCT. These alternative models are recommended to be integrated in more settings and on a much large scale in sub Saharan Africa where VCT uptake remains low.¹⁴

Data on HIV testing uptake from 29 countries, conducted by the Demographic and Health survey project between 2003 and 2013 reveals that the majority of adults have never been tested for HIV.¹⁵

Most of the African countries had adopted the provider initiated testing and counseling (PITC) with a range of challenges on implementation. In an interventional study done in Rwanda 2009 a total of 1772 attendees were systematically interviewed as they left the health facility, over 95% agreed with the PICT policy, both prior to and after implementation of PITC policy, and the most common reason been given for testing were the desire to know one's HIV status and having been offered a HIV test by a health care worker. The most frequent reason for not being tested were known HIV status and test not being offered. In multivariate analysis, PITC, age > 15 years, and not having been previously tested were factors significantly associated with testing. Although work load was increased by PITC, HIV testing rates increased and health care workers overwhelmingly supported the policy.¹⁶

It has been found that the attitudes of health care providers also play a crucial role in HIV testing acceptance as providers who are perceived to be judgmental and unfriendly decrease acceptance. The uptake of HIV testing was also significantly affected by service operating hours. Offering services after official working hours as well as on weekends and remaining open through lunch hour has been shown to increase acceptance.¹⁷

In a study done in Benin city of Nigeria, and involved interview of 1051 women seeking induced abortion in four randomly selected private clinics between January and September 2002, the results showed only 13% of the women studied accepted HIV testing. It also showed that out of the 1051 women studied 95.2% had multiple sexual partners, and 68.8% regularly practice unprotected sex. Though all the participants were aware of HIV/AIDS, the older women were more likely to accept voluntary HIV testing than younger ones. Acceptance rate for voluntary HIV testing was low in both the employed and unemployed and much lower among full time housewives.¹⁸

Rasch et.al conducted a study in Tanzania to assess the acceptance of, and outcome of voluntary HIV counseling and testing among women who had an unsafe abortion. The results showed 58% of the women who had unsafe abortion accepted HIV testing. Women who earned an income were more likely to accept testing than housewives. Women who accepted testing were more likely to accept using condom. The HIV prevalence rate was 19% among single women aged 20-24 years, and 25% among single women aged 25-45 years.¹⁹

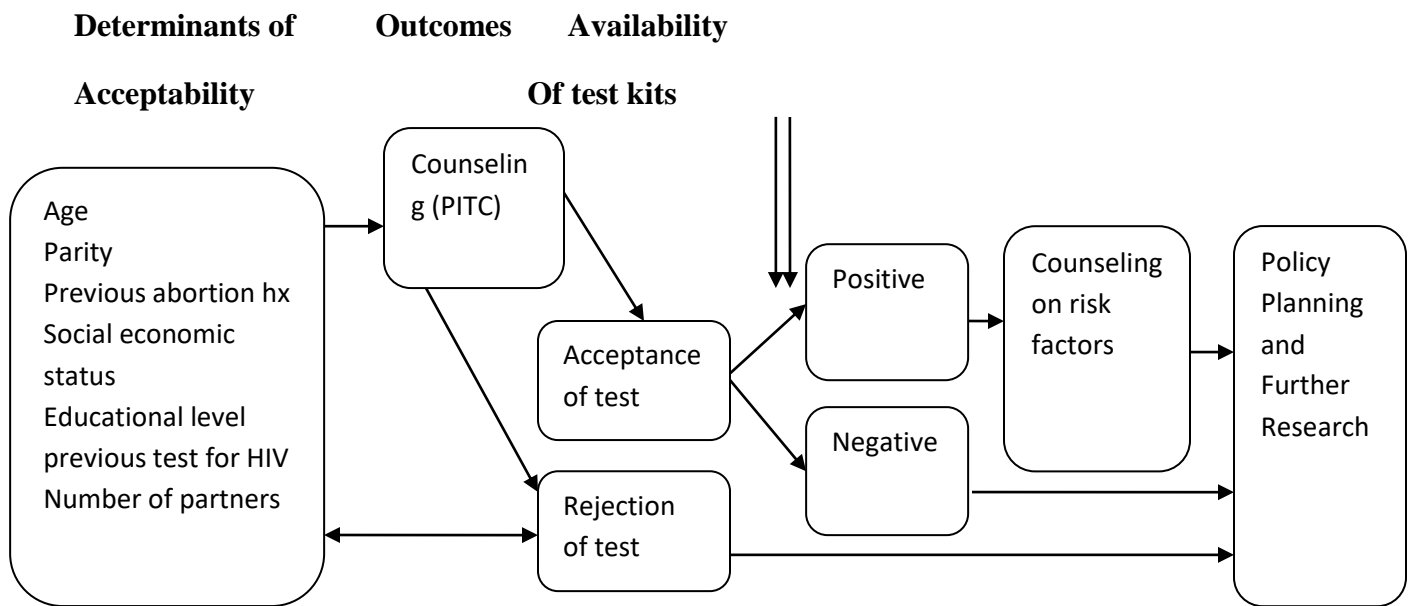
Studies had shown that waiting time to get HIV test results affects acceptability of testing.²⁰ Same day service as in the rapid HIV test means that people who test positive benefit from treatment options as well as post-test counseling.²¹ Studies had also shown that anonymous testing for HIV where code numbers are used and not names have shown to increase acceptability of HIV testing,²² the main disadvantage of anonymous services is lack of clients to facilitate referral and support services.²³

Chege. H, in his study in Kenyatta National Hospital in Nairobi 2006, found that teenagers comprised 15.3% of all patients who presented to the Gynecological outpatient during the study period, and the majority of patients 60.6% presented with amenorrhea between 8 to 12 weeks. Of all patients studied 35.8% had previously been tested for HIV, among those tested ANC attendance had contributed to the largest chunk of tested patients 56.3%. Out of the patients studied 67.9% accepted to be tested for HIV and 32.1% declined the HIV test. On testing 31.8% of the patients were tested HIV positive, 68.2% were negative.²⁴

In South Sudan, due in part to infrastructure challenges in health care, and decades of civil strife, limited national data exist on sexual and reproductive health, including on HIV and AIDS. With a high numbers of internally displaced people living in environments characterized by poverty and gender base violence, access to health services is always tenuous. Estimates had showed that one in five women in reproductive age in South Sudan has unmet need for family planning, and the modern method contraceptive prevalence rate is only 1.5% arguable the lowest in the world.²⁵

South Sudan is now integrating provider initiated HIV testing and counseling HTC in health care centers to allow patients to avoid the stigma that comes with visiting stand- alone HTC sites and get tested for HIV.²⁶

CONCEPTUAL FRAME WORK



As shown in the schematic conceptual frame work, the acceptability of HIV testing by post abortion clients could be determined by several factors including age, parity, and educational level among others. These factors coupled with effective counseling may influence the decision by the client to either accept or not accept the HIV testing. The outcome of the testing for women who accepted whether they tested positive or negative will make a baseline evidence for planning and future research, reasons for not accepting the test will also be studied.

STUDY JUSTIFICATION

Post abortion care patients accounts for over 60% of overall admissions to the gynecological unit of the Juba Teaching Hospital, these patients are at a great risk of HIV and other STIs due to their exposure to unprotected sex. Currently routine HIV testing is not offered to post abortion care patients in JTH. This is a missing opportunity for these women, as this might be the only chance for some of them to get in touch with a health facility. Conducting a HIV testing to this sentinel group may possess a golden opportunity for these women to know their HIV sero status and benefit from early diagnosis and treatment of the disease.

Findings from this study is hoped to be utilize for formulating a policy to integrate HIV counseling and testing to post abortion care services as a routine in JTH and other health facilities. It will also bring up the reasons for rejection of the HIV testing in order to be address properly. The study will also provide data for future research on reproductive health in JTH and South Sudan in general.

RESEARCH QUESTION

What are the factors that are associated with acceptability of HIV testing among post abortion care patients at Juba Teaching Hospital?

OBJECTIVES

Broad objectives:

- To determine factors that are associated with the acceptability of HIV testing among women receiving post abortion care in Juba Teaching Hospital.

Specific objectives

- To determine the socio demographic characteristics of women receiving post abortion care at JTH
- To compare the socio demographic characteristics of women who accept and those who decline the HIV test.

METHODOLOGY:

Study design

This was a cross-sectional study of factors that are associated with acceptability of HIV testing among patients receiving post-abortion care from December 2015 to January 2016 in JTH. About 340 patients were recruited into the study using systematic consecutive sampling method.

Study site description

Recruitment was done from the gynecological room in the A&E and the gynecological wards at Juba Teaching Hospital; the hospital was selected because it's a teaching and referral government institution that is located in Juba town capital city of South Sudan.

The hospital serves an estimated population of 546,496 with a total bed capacity of 506 beds.

The hospital offers a wide range of comprehensive health services and it also serves as a teaching hospital for college of health sciences of the University of Juba. The Obstetrics & gynecology unit consists of the outpatient Obstetrics/gynecology room in the accident and emergency department, a maternity unit and gynecological wards. The maternity unit is made up of antenatal and post natal wards, labor ward, new born unit, antenatal clinic and the operating theatre. There are two gynecological wards with a total bed capacity of about 50 beds. The unit is managed by four consultant obstetrician/gynecologists, six medical officers, and medical officer interns, clinical officers, nurses, midwives, and other supporting staff. The gynecological wards has a total admission number of about 420 patients per month about 5,040 patients in a year. The unit attends to approximately 5 to 7 abortion-related cases daily. The hospital is the largest referral hospital in the country that makes it a suitable site for the study because of the good numbers of women attending to the facility.

Study population

All patients with diagnosis of abortion treated at the gynecological unit who gave an informed consent and met the eligibility criteria were recruited in the study. JTH treats patients from the environs of Juba and also referrals from outside the town the majority are African women both single and married.

Inclusion criteria

- All patients seen and treated at the gynecological unit of JTH, with definitive diagnosis of abortion at or below 20 weeks of gestation,
- Written informed consent by the patient or guardians to participate in the study.

Exclusion criteria

- Patients who were too ill to give consent

Sample size and sampling procedure

JTH was purposely selected, and a systematic consecutive sampling was used until the sample size was obtained. There was no data on factors associated with HIV test acceptance from South Sudan so an estimate from a study done in Kenyatta National Hospital in Kenya among inpatients presenting with incomplete abortion was used to determine the sample size. (23)

The below fishers formulae was used to determine the minimum sample size required.

$$n = [Z_{\alpha/2}^2 p(1-p)/d^2]$$

Where;

n= the required minimum sample size,

Z_α²= a standard score corresponding to 95% CI thus equal to 1.96,

p = Proportion of patients accepting HIV testing (in our case 67.6% from the Kenyan study since no study has been done in South Sudan previously).

d= the margin of error and was taken to be 5% (0.05).

$$\frac{(1.96)^2 \times 0.676(1-0.676)}{0.05 \times 0.05} = 336$$

The minimum sample size required was 336 post abortion women.

The study subjects were selected on a systematic sampling basis. The principal investigator and the research assistants engaged all the patients in the Obs/Gyn room at the accident & emergency department, who had the diagnosis of abortion and after they have been offered treatment.

Patients who were severely ill and admitted to the wards, were approached latter after receiving the emergency care and their condition stabilized. Structured questionnaires were administered to those consenting to the study until a sample size of 336 was attained. The data collection processes took a period of 2 months.

Sources and methods of recruitment

The study was explained to the patients in the Obs/Gyn room in the A&E and a written consent was obtained for recruitment into the study. The patients were advised that the test is important but not mandatory and that declining to participate in the study will not affect the quality of care given to them. Patients were also assured that the obtained information from the questionnaire will be handled with a high level of confidentiality and privacy. Information about HIV transmission, diagnosis and availability of treatment were given to all the patients. During the

interview privacy and confidentiality were strictly observed. After the interview health education/information was offered to the clients, pre testing and posttest counseling was also done.

Data collection and management

Three research assistants (nurse counselors) were recruited and trained to assist in data collection. Structured questionnaires were used to interview the patients after they have received treatment for abortion. The questionnaire was filled by direct interview of each participant by the principal investigator or the research assistants this was done in a private room. Patients who accept to undergo the HIV testing were given pre test counseling then pricked and post test counseling was given to them. The test results were disclosed to them and the interview concluded. Patients who tested positive for HIV were given additional counseling and referred for treatment in (ART) site within the hospital. The HIV testing was conducted using Determine[®] rapid testing kit; if positive Uni-Gold[™] was done. All questionnaires were checked by the principal investigator to ensure the data is fully captured and questionnaires completely filled. The questionnaire was pretested by interviewing 20 patients with abortion in JTH, by the principal investigator.

Data analysis methods

Data entry template was created in MS Office Access 2003. Data were checked for completeness and corrected at source. Data entry was done in duplicate for validation (double entry) and cross-checked for entry error and range checks. Data cleaning and validation was conducted before analysis. The demographic characteristics of participants were described using means (SD) and medians (range) for continuous variables.

Continuous data including age were categorized into appropriate groups for analysis. Levels of categorical data with few observations were re-categorized to allow for cross tabulation analysis and multivariate analysis purposes.

Descriptive statistics including mean, standard deviation, frequency distribution and proportions were done for all variables. Comparison between categorical variables were done using Chi square test. The dependent variable was calculated as the proportion of post abortion women who accepted HIV testing and this percentage reported with corresponding confidence interval. To identify factors associated with acceptability of HIV test the dependent variable was cross tabulated with each socio-demographic characteristic, health seeking, and reproductive health attributes. The odds ratio (95% CI) was calculated to measure effect of these variables on HIV testing acceptability. The factors that were significantly associated with HIV testing were included in multivariable logistic regression model to identify independent predictors of HIV testing acceptability.

Research Ethics

Approval to conduct the study was obtained from the Kenyatta National Hospital/University of Nairobi Ethics and Research Committee through the Department of Obstetrics and Gynaecology in the University of Nairobi. Permission was also sought and obtained from the Research Committee at the national ministry of health South Sudan. Written consents were obtained from the caretakers willing to participate in the study.

All the relevant HIV informations were given to the caretakers.

- The patients with HIV positive test result were linked to the relevant department for staging of HIV stage, counselling and possible initiation of ARVs.
- Post test counselling was given to all patients who accept the routinely offered HIV test

The patients were assured of privacy and confidentiality and they were reassured that declining to participate in the study will not affect their care in the clinic.

Post test counselling

This involved supporting the patient in adjusting to the test results, discussing with her the care that is necessary and available for her, for example cotrimoxazole prophylaxis and follow up at the CCC (further counselling treatment of opportunistic infections as they occur and ART initiation) The issue of nutrition, positive living, disclosure and ways to avoid infection to others was also addressed

Study limitations

- Some patients were not able to remember some of the events concerning their sexual and reproductive life. (Recall bias).
- Due to the nature of a cross sectional study it was hard to establish a causal-effect relationship between factors and the outcome of interest.
- Some of the health care providers were suspicious that the study could be critical of their attitude towards these patients or the management they provide.

To overcome of these limitations, adequate counseling of the participants was done, and they were assured that the information obtained by this study will remain confidential and will be used only for the purposes of the study and that make them feel secure and gave honest information about their reproductive life. All those concerned with the management of the patients were made to understand that the study will be carried in good faith, and it doesn't involve assessment the staff performance or the level of care they provide to the post abortion clients.

RESULTS

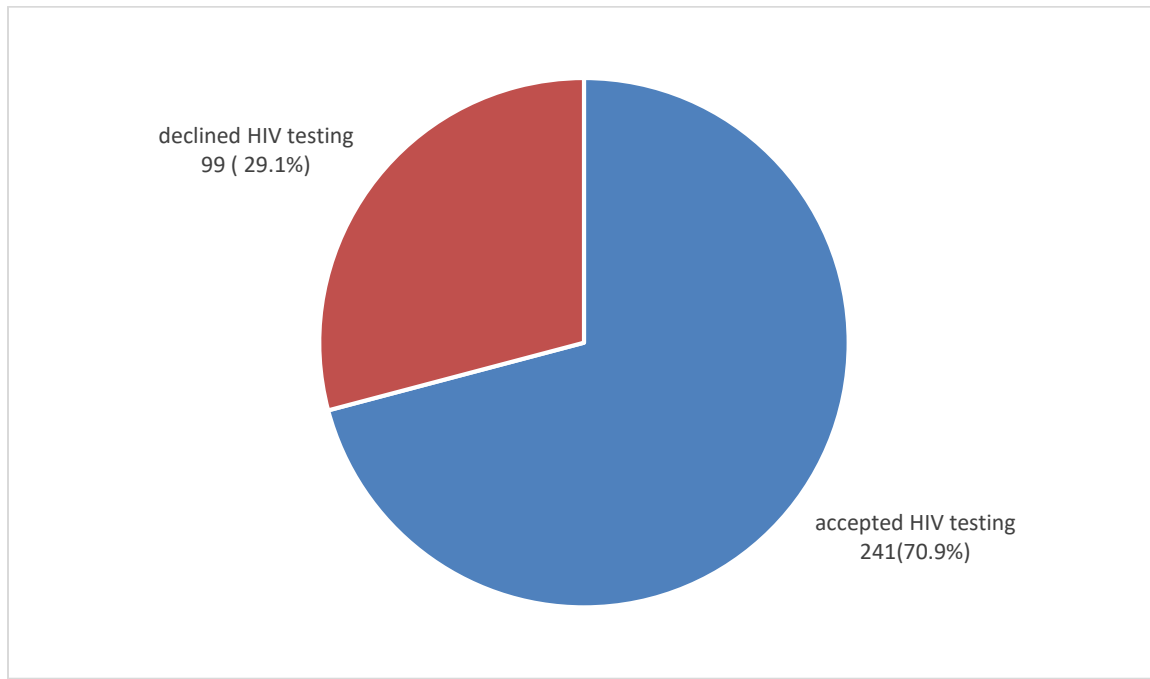
A total of 340 mothers who received (PAC) in Juba Teaching Hospital were recruited in the study over a period of two months.

Table 1: Demographic characteristics of women who received PAC during the study period in JTH

	Number	Percent
Mean age \pm SD	24.7 \pm 5.5	-
15 – 19 years	60	17.6
20 – 24 years	112	32.9
25 – 29 years	107	31.5
30 – 34 years	41	12.1
35 – 39 years	17	5
40 – 45 years	2	0.6
45 years and above	1	0.3
Marital status		
Single	40	11.8
Married	293	86.2
Divorced / Separated	7	2.1
Level of formal education		
None	108	31.8
Primary	123	36.2
Secondary	85	25
College / University	24	7.1
Currently employed		
Yes	107	31.3
No	233	68.5
Religion		
Christian	302	88.8
Muslim	34	10.0
Others	4	1.2

Table 1: presents the demographic characteristics of women who underwent PAC and were recruited into the study. The mean (\pm SD) age of the participants was 24.7 (\pm 5.5) years, and 172 (50.6%) were aged below 25 years. The married women were 293 (86.2%). Most of the participants had either no formal education 108 (31.8%) or primary level education 123 (36.2%). The majority 302 (88.8%) of the participants were Christians, and among the Christians there were 173 (61.1%) Catholics and 110 (38.9%) Protestants. Approximately one-third 107 (31.5%) of participants was employed.

Figure 1: Acceptability rate of HIV testing among women received post abortion care in Juba Teaching Hospital.



Among the 340 post abortion women in the study 241 accepted HIV testing yielding a HIV testing acceptability of 70.9% (95% CI 66 to 75.7%).

Table 2: Comparison of Socio-demographic characteristics of post abortion care women who accepted and those who did not accept the HIV testing .

	Accepted testing		OR (95% CI)	P
	Yes	No		
	n = 241 (%)	n = 99 (%)		
Age				
15-19 years	32(13.3)	28(28.3)		
20-24 years	79(32.8)	33(33.3)	2.09(1.09-4.01)	0.026
25-29 years	79(32.8)	28(28.3)	2.47(1.27-4.80)	0.008
30-34 years	34(14.1)	7(7.1)	4.25(1.63-11.08)	0.003
35 years and above	17(7.1)	3(3.0)	4.96(1.31-18.71)	0.018
Marital status				
Single	26(10.8)	14(14.1)	1.0	
Married	212(88.0)	81(81.8)	1.41(0.70-2.83)	0.336
Divorced/separated	3(1.2)	4(4.0)	0.40(0.08-2.07)	0.276
Level of education				
None	65(27.0)	43(43.4)	1.0	
Primary	93(38.6)	30(30.3)	2.05(1.17-3.60)	0.013
Secondary	63(26.1)	22(22.2)	1.89(1.02-3.52)	0.043
College/University	20(8.3)	4(4.0)	3.31(1.06-10.35)	0.04
Currently employed				
Yes	82(34.0)	25(25.3)	1.0	
No	159(66.0)	74(74.7)	0.66(0.39-1.11)	0.115
Religion				
Christian	216(89.6)	86(86.9)	1.0	
Muslim	21(8.7)	13(13.1)	0.64(0.31-1.34)	0.24
Others	4(1.7)	0(0.0)	NA	

Table 2: shows in the sociodemographic characteristics of PAC women who accepted the HIV testing in comparison to PAC women who did not accept the HIV testing. There was a significant association between HIV testing acceptability and both maternal age and level of formal education. The acceptability rates increases dramatically as the age of the participants

increases, with women aged more than 35 years are 4.9 times more likely to accept HIV testing than women aged less than 20 years.

The acceptability of HIV testing also increases with increase level of education with women who had primary, secondary and university education were 2times, 1.8 times, and three times more likely to accept testing respectively in comparison to women with no formal education.

Employment status, marital status and religion did not show statistically significant associations with HIV acceptability (all p values > 0.05)

Table 3: Comparison of reproductive health history of women receiving PAC who accepted HIV testing and those who did not accept testing

	Accepted testing		OR (95% CI)	P
	Yes	No		
	n = 241 (%)	n = 99 (%)		
Number of abortions				
1	201(83.4)	84(84.8)	1.0(ref)	
2	23(9.5)	11(11.1)	0.87(0.41-1.87)	0.729
More than 2	17(7.1)	4(4.0)	1.78(0.58-5.44)	0.314
Period of amenorrhea				
Less than 8 weeks	41(17.0)	21(21.2)	1.0(ref)	
Between 8-12 weeks	104(43.2)	40(40.4)	1.33(0.70-2.53)	0.38
Between 12-16 weeks	57(23.7)	29(29.3)	1.01(0.50-2.01)	0.985
Between 16-20 weeks	25(10.4)	6(6.1)	2.13(0.76-6.01)	0.151

Table 3 shows a comparison between the reproductive health history given by women who accepted the HIV testing and those who decline the testing. There were no significant association between the number of previous abortions and the acceptability of the HIV testing among all women undergoing PAC in Juba Teaching Hospital

Table 4: Comparison of utilization of reproductive health services among women receiving PAC who accepted and those who did not accept the HIV testing.

	Accepted testing		OR (95% CI)	P
	Yes	No		
	n = 241 (%)	n = 99 (%)		
Ever used any family planning method				
Yes	49(20.3)	25(25.3)	1.0(ref)	
No	192(79.7)	73(73.7)	1.34(0.77-2.33)	0.296
Type of family planning method used				
Injectable	25(10.4)	17(7.1)	1.0(ref)	
Implant	14(5.8)	10(4.1)	0.95(0.34-2.64)	0.925
IUCD	3(1.2)	0(0.0)	NA	
Others	5(2.1)	1(0.4)	3.40(0.36-31.74)	0.283
Ever screened/ treated for cancer of the cervix				
Yes	12(5.0)	5(5.1)	1.0(ref)	
No	229(95.0)	94(94.9)	1.02(0.35-2.96)	0.978
Aware of the benefits of ARVs				
Yes	99(41.1)	39(39.4)	1.0(ref)	
No	142(58.9)	60(60.6)	0.93(0.58-1.50)	0.774

Table 4 shows client reported utilization of reproductive health services did not show a significant association with HIV testing acceptability. HIV testing acceptability among women who had ever used family planning was 49 (62.2%) compared to 189 (72.1%) among those who had never used family planning ($p = 0.323$). Cervical cancer screening and awareness of ARV benefits were also not associated with HIV testing acceptance (70.6% versus 70.9% in women who had screened and not screened; and 71.7 versus 68.9% in women aware and not aware of ARV benefits)

Table 5: Details of previous HIV testing among women receiving post abortion care at JTH

	n	%
Ever tested for HIV	262	77.1
Type of facility attended for HIV testing		
Hospital	125	53.2
Health centre	91	38.7
VCT centers	11	4.7
Others	8	3.4
Reason for HIV testing		
Requirement by employer	2	0.9
Ante natal care profile	159	68.8
Requirement for marriage solemnization	10	4.3
Self awareness (VCT)	58	25.1
Others	2	0.9
HIV results disclosed to client	262	100
HIV test results		
Positive	2	0.9
Negative	260	99.1
On follow-up in clinic due to HIV status	2	0.9
Type of facility attended for HIV follow-up		
Hospital	1	50
Health centers	1	50

Table 5 shows the information given by the PAC women regarding their previous HIV testing, there were 262 (77.1%) post abortion women who reported that they had been previously tested for HIV. Out of these women 125 (53.2%) had been tested in hospital and 91 (38.7%) in a health centers. There were 11 (4.7%) mothers reporting that they were tested at a VCT center.

All 262 women said that the results of the test were disclosed to them, and of these women 2 (0.9%) were HIV positive and both were attending follow-up care.

Table 6: Acceptability of repeat HIV testing among women receiving PAC in JTH

	Accepted testing		OR (95% CI)	P
	Yes	No		
	n = 241 (%)	n = 99 (%)		
Ever been tested for HIV				
Yes	193(80.1)	69(69.7)	1.74(0.98-3.07)	0.033
No	48(19.9)	30(30.3)	1.0(ref)	

Table 6 shows that there was a significant association between ever having tested for HIV and acceptability of HIV testing ($p = 0.033$). Women who had ever been tested for HIV were 1.7 times more likely to accept HIV testing in our study. (OR = 1.74, 95% CI 0.98-3.07)

Figure 2: Reasons for declining HIV testing among women receiving post abortion care at JTH.

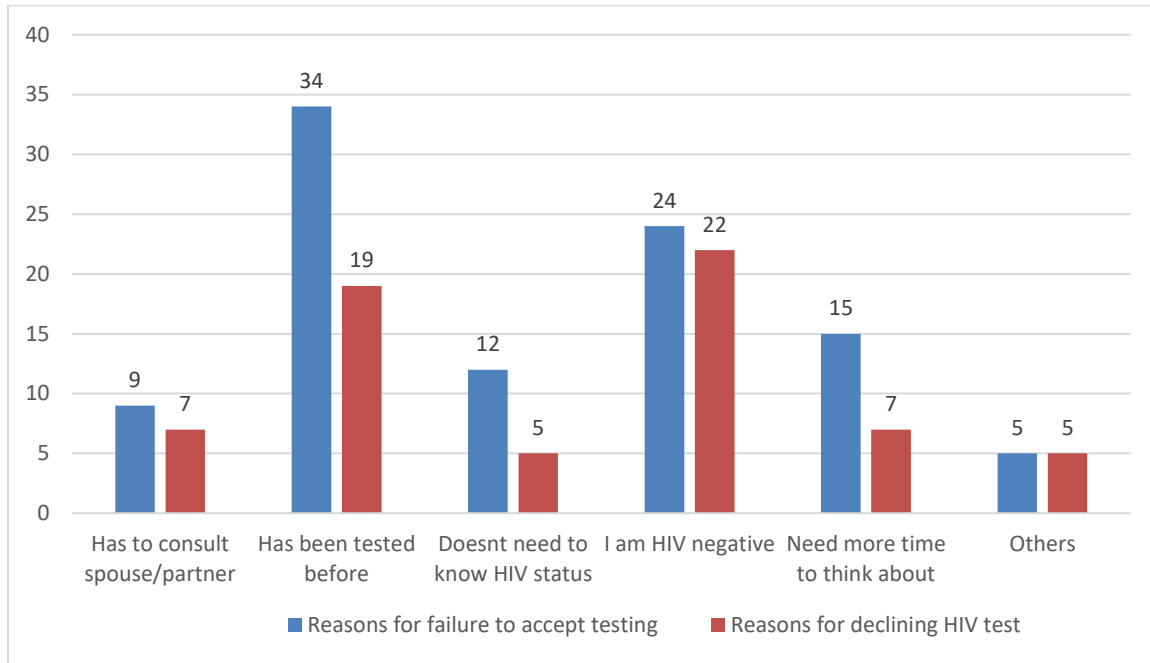


Figure 2 presents the reasons post abortion women gave for not accepting HIV testing and also reasons for declining a test even after indicating that they would be willing to accept HIV testing. But they changed their mind after the pre test counseling. The most common reason for them not accepting testing was that they believed that they were HIV negative (n = 24 and 22, for not accepting, and declining test after initially accepting during recruitment for the study respectively) based on previous HIV test results or that they had been tested before and they were aware of their HIV status (n = 34 and 19). There were mothers who needed to consult spouses before testing (n = 9 and 7), needed more time to think (n = 15 and 7) or felt that they did not need to know their HIV status (n = 12 and 5).

Table 7: Maternal reaction to their HIV test results in the post-HIV testing period

	N	%
Willingness to know HIV status		
Yes	226	95.8
No	10	4.2
Reasons for not wanting to know HIV status		
Positive results is equivalent to death	1	11.1
Need more time to decide	1	11.1
Others	7	77.8
HIV test results		
Positive	4	1.8
Negative	216	98.2
Agreement with HIV test results		
Yes	217	99.1
No	2	0.9
Reason for disagreeing with HIV results		
Has been tested previously and given a different result	1	0.5

Table 7 shows the different reactions by PAC women to their HIV test results. Out of the women who accepted HIV testing 226 (95.8%) were willing to know their HIV status after being tested. There were 4 (1.8%) women with HIV positive results. Two (0.9%) of them did not agree with the HIV test results and one disagreed with the results based on previous contrary HIV test results.

Table 8: Multivariable analysis of the factors associated with acceptability of HIV testing among PAC women.

	OR	95% CI	P value
Age			
15 -19	1.0		
20 -24	1.99	1.02 – 3.88	0.043
25 – 29	2.25	1.12 - 4.50	0.022
30 – 34	4.38	1.26 – 11.84	0.004
>35	5.06	1.30 – 19.71	0.019
Level of education			
No formal education	1.0		
Primary	2.15	1.18 – 3.93	0.012
Secondary	1.97	1.03 – 3.78	0.041
College/ University	2.62	0.82 – 8.41	0.105
Previous HIV testing			
HIV screening done previously	1.0		
Not previously tested for HIV	0.83	0.46 – 1.47	0.516

Table 8 shows the findings of the multivariable logistic regression analysis of factors that were significantly associated with HIV testing acceptability in the bivariate analysis (p values < 0.05). Age and education were significantly and independently associated with HIV testing acceptability after adjusting for the effect of previous HIV testing.

Clients aged 25 years and above were 1.81 times more likely to accept testing compared to those aged below 25 years (OR = 1.81, 95% CI 1.1-2.99, p = 0.019), after adjusting for the effects of education and previous HIV testing.

Formal education was associated with significantly higher HIV testing acceptability. After accounting for the effect of age and previous HIV testing clients with primary (OR = 2.09, 1.16-3.76), secondary (OR = 2.06, 1.08-3.94) and tertiary (OR = 2.88, 0.91-9.19) education had significantly higher odds of accepting HIV testing compared to those with no formal education

DISCUSSION

The present study is the first to report the acceptability of HIV testing among post abortion care women in Juba Teaching Hospital South Sudan. We found that 70.9 % of women who received post abortion care accepted HIV testing. This observation is nearly similar to what is observed in KNH in Nairobi where 67.9% of women who presented with in complete abortion accepted to be tested for HIV (23). This finding was also comparable observation by Enosolease et.al in Nigeria where only 13% of women seeking induced abortion, accepted HIV testing (17). Higher acceptance of HIV testing among women is crucial if we want to eliminate new HIV infections, and achieve the UNAIDS (90-90-90) target which aim at diagnosing 90% of people living with HIV by the year 2020.

The provider initiated HIV testing and concealing (PITC) policy is shown to enhance acceptability of HIV testing (16). In Juba Teaching Hospital this policy has not yet been rectified and implemented. The (PITC) policy should be integrated into the post abortion care services in JTH in order to increase the acceptability rates and also to strengthen the post abortion care services in the hospital.

Given that we observed a HIV prevalence of 2.7 % among PAC women in Juba, this means that among the 99 women who refused HIV screening, three women might have been HIV infected and missed for ART interventions. And the fact that most of these women declined the HIV testing because they believe they were HIV negative based on previous test results, this shows their ignorance about the window period of HIV infection and the possibility of getting the infection after previous negative HIV test results. Similar study found the prevalence of HIV was 31.8% in KNH (23) the author attributed this finding to the fact that the sample size for his study was relatively small and the fact that KNH being a referral hospital and therefore receives most of the high risk patients.

The socio-demographic characteristic of the post abortion care women recruited in the study is comparable to that observed in similar studies conducted in two East African settings (18, 23) characterized by a low level of education and unemployment among women. More than 3/4 of the PAC women in our cohort were married but no association was found between marital status and the acceptability of HIV testing, even though previous studies including one conducted in South Africa reported a higher prevalence among unmarried women.

Our study had found a significant association between educational level of the participants and acceptability of HIV; Women who attended secondary school or University accepted HIV testing approximately three times more than women with no formal education. Similar observation was seen in a study done in KNH (23). The correlation between education and acceptability of HIV testing could be attributed to the fact that education plays a key role in the understanding of HIV counseling messages specially when delivered in English or Arabic, as many women in Juba don't understand these languages. Studies had shown a high acceptance rate of Voluntary Counseling and Test (VCT) when conducted in familiar languages (27, 28). Therefore the ministry of health in South Sudan and all its partners should consider all the HIV messages in all forms of media should be translated and delivered in at least the main languages and dialogues in South Sudan.

In the present work, our findings showed that 77.1% of the participants had a prior HIV testing. This group of women were also found to have high acceptance rate of HIV testing than women who had not been tested before (OR=1.62). This is comparable to findings from a study done in Uganda where they reported that women, who had not been tested for HIV previously, were 2.1 times more likely not to accept HIV testing (29).

In this study religion and employment status was not found to be associated with the acceptability of HIV testing, this was comparable to findings by Rasch et.al in Tanzania (18) where they reported that women who earn an income were more likely to accept HIV testing than housewives, the same observation was also seen in a study done in Ethiopia where they reported employed women were 2.1 times more likely to accept HIV testing than housewives. The fact that religion was not found to be an important factor to influence the acceptability of HIV testing in this study could be attributed to the fact that more than ¾ of the women in this study were Catholics, and Catholics are believed to be more conservative in delivering messages that are related to family planning and other reproductive health issues including HIV. In order to address this gap, the leaders of the Catholic Church and other religious leaders should be engaged so that they can play a positive role in disseminating the HIV messages to the Christian congregations.

South Sudan has the highest unmet need for family planning worldwide, many factors contribute to the under utilization of family planning and other special reproductive health services including religion, believes and cultures. In this study there were no association between the use of these services and acceptability of HIV testing. But its worth to mention that some of this services like screening and treatment for cancer of the cervix actually are not available in JTH. Utilization of these services is shown to enhance the acceptability of HIV testing (30)

It is important to highlight the fact that this study has been conducted in urban health facility; therefore the findings may not be generalized to rural facilities. There are significant differences in the socio-demographic structure of populations that live in urban versus rural areas, with

urban population being more educated and economically advantaged compared to rural population.

The current HIV/AIDS campaign momentum in South Sudan should be strengthened. More media or radio talks should be aired to educate families and community members on HIV/AIDS issues. More efforts should target the young women populations and empower them when taking decision regarding testing for HIV.

CONCLUSION

The acceptability of rapid HIV test screening among post abortion care patients at Juba Teaching Hospital is at 70.0%, this figure is yet to meet the UNAIDS targets for the year 2020, which aim at 90% of PLHIV should be diagnosed by the year 2020. Many efforts need to be exerted to meet this target in South Sudan. There was a significant association between HIV testing acceptability and both maternal age and level of formal education, with young (<25years) patients less likely to accept testing, and the more educated women are more likely to accept HIV testing.

Employment status, marital status and religion did not showed statistically significant associations with HIV testing acceptability. Previous HIV testing increases the chances of HIV testing acceptability. The most common reason for mothers not accepting testing was that they believed that they were HIV negative based on previous HIV test results. The study had diagnosed 4 new clients with HIV positive results. The HIV prevalence rate among the study group was at 2.9%, slightly lower than the national HIV prevalence this could be in the rise due to the current instability in the country.

RECOMMENDATION

- HIV testing is well accepted among post abortion care women in JTH. Therefore it should be integrated into the post abortion care services in the hospital and other health facilities in the country.
- Design HIV health education messages to target women with limited or no formal education eg: radio messages in local languages and mass media campaigns.
- Interventions to improve HIV testing acceptability should target young women and those who do not attend ANC through community health workers out reach visits.

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STUDY QUESTIONNAIRE:

FACTORS ASSOCIATED WITH ACCEPTABILITY OF POST ABORTION HIV TEST SCREENING AT THE GYNACOLOGICAL UNIT OF JUBA TEACHING HOSPITAL, JUBA SOUTH SUDAN.

A. IDENTIFICATION:

1. Patient's study identification number. _____
2. Patient's hospital number _____

B. SOCIO DEMOGRAPHIC CHARACTERISTICS:

3. What is your age in years? _____

4. What is your marital status?

- 1) Single
- 2) Married
- 3) Divorced/ separated
- 4) Widowed

5. What is your level of education?

- 1) None
- 2) Primary
- 3) Secondary
- 4) College / University

6. Are you employed/earning income?

- 1) Yes
- 2) No

7. What is your religion?

- 1) Christian
- 2) Muslim
- 3) Others (specify) _____

If Christian:

Catholic

Protestant

8. Parity? _____ + _____

9. Last menstrual period (LMP) _____/_____/_____

10. Period of amenorrhea

- 1) Less than 8 weeks
- 2) Between 8 < 12 weeks
- 3) Between 12 < 16 weeks
- 4) Between 16 < 20 weeks

11. Have you ever used any family planning method?

- 1) Yes
- 2) No

12. If yes, which method of family planning?

- 1) Condom
- 2) Injectable
- 3) Implant
- 4) IUCD
- 5) Other(specify)_____

13. Have you ever been screened/ treated for cancer of the cervix?

- 1) Yes
- 2) No

14. Are you aware of the benefits of anti retroviral drugs?

- 1) Yes
- No

15. Have you ever been tested for HIV?

- 1) Yes
- 2) No

If no go to question 23

16. Where were you tested for HIV?

- 1) Hospital
- 2) Health centre
- 3) Voluntary counseling and testing centre
- 4) Other (specify) _____

17. What was the reason for HIV testing?

- 1) Requirement by employer
- 2) Antenatal Care profile
- 3) Requirement for marriage solemnization
- 4) Self awareness (VCT)
- 5) Other (specify) _____

18. Was the result disclosed to you?

- 1) Yes
- 2) No

If no go to question 23

19. What was the result?

- 1) Positive
 - 2) Negative
- If negative go to question 23

20. Are you on follow-up in any clinic due to your HIV status?

- 1) Yes
 - 2) No
- If no go to question 23

21. Where are you doing follow-up?

- 1) Hospital
- 2) Health center
- 3) Other (specify)

22. Are you receiving medication for HIV infection where you are been followed up?

- 1) Yes
- 2) No

23. Would you like to be tested for HIV?

- 1) Yes

2) No

If yes, counseling is given then interview proceeded to question 25

If no, interview proceeded and ends at question 24.

24. Reasons for refusing HIV testing?

- 1) Has to consult spouse/partner
- 2) Has been tested before
- 3) Doesn't need to know HIV status
- 4) I am HIV negative
- 5) Need more time to think about it
- 6) Other (specify) _____

25. Would you like to have the HIV test done?

- 1) Yes
- 2) No

If yes, patient is pricked and rapid HIV test carried out. Interview then proceeds to question 22.

If no, interview proceeds and ends at question 26.

26. Reason for refusing the HIV test?

- 1) Has to consult spouse/partner
- 2) Has been tested before
- 3) Doesn't need to know HIV status
- 4) I am HIV negative
- 5) Need more time to think about it
- 6) Other(specify)_____

27. Would you like to know your HIV test results?

- 1) Yes
- 2) No

If yes, patient is post-test counseled and if still willing given the result. Interview then proceeds to question 29.

If no, interview proceeded and ends at question 28

28. Reasons for not wanting to know the HIV results?

- 1) Cannot cope with positive results.
- 2) Positive result is equivalent to death

- 3) I suspect I am positive
- 4) Need more time to decide
- 5) Others (specify) _____

29. The result of your HIV test is:

- 1) Positive
- 2) Negative

30. Are you in agreement with the result?

- 1) Yes
- 2) No

31. Reasons for not agreeing with the results?

- 1) Had been tested previously and given a different result
- 2) Test is inaccurate
- 3) Need confirmation with a different test
- 4) Will repeat the test
- 5) Other (specify) _____

CONCENT FOR PARTICIPATION IN THE STUDY

Factors associated with acceptability of HIV test screening among post abortion care patients at Juba Teaching Hospital

Introduction

I am a postgraduate student in the department of obstetrics and gynecology, at the University of Nairobi. I would like to invite you to take part in a research study. In order to be sure that you understand what it means to be involved in this study, please read the information in this consent form carefully,(or am going to read for you) if there is anything you do not understand in this consent form please ask us and we shall explain.

Objective of the research

This study aims to determine how acceptable is the HIV testing among women who are receiving treatment for abortion, it will also determines the factors that may influence the decision to accept or decline the HIV test, the study will also ascertain the effects of utilization of other special reproductive health services on the acceptability of the HIV testing. It is hoped that the study will enhance the number of women who undergo HIV counseling and testing as well as improving the post abortion care at Juba Teaching Hospital.

Study procedure

If you agree to take part in the research study you will be interviewed and counseled by the principal investigator or his assistant in confidential manner. Your name will not be recorded in the questionnaire. And if you accepted to take the HIV test then we will prick your finger and take few drops of your blood for the test, you will then receive the post test counseling and you will be shown your test result.

Benefits and risks of involvement in the study

You may benefit from the study by knowing your HIV sero-status and live accordingly, if you test is confirmed positive, then you will from a wide range of free services in the hospital including accessibility to anti- retroviral drugs. We don't think you will face any risk if you decided to participate in the study; your reply to the questionnaire will not be used against you but solely for the study research purposes.

Compensation

We will not be able to provide you with any payment or gift for being in the research, but we will appreciate your participation.

Voluntarism

You are free to decide if you want to participate in the study or not. Your decision will not be used against you if you decided not to participate in the study.

We will only use a finger prick to obtain the blood sample for the test. And the study does not involve any follow up program.

If you have any inquiry please contact the researcher at:

Dr Lado Wani Ismail
Department of Obstetrics& Gynecology
University of Nairobi, Kenya
Tel: +254717443116 / +211910398123
Email: ladowani2011@yahoo.com

Or contact the Kenyatta National Hospital/ University of Nairobi Ethics and Research Committee at:

Kenyatta National Hospital
P O BOX 20723 code 00202
KNH/UON-ERC tel: 726300-9
Fax: 725272

PARTICIPANT’S AGREEMENT

The above document describing the benefits, risks and procedures for the research study factors associated with acceptability of HIV testing among post abortion care patients at the gynecological unit of JTH has been explained to me.

I have been given an opportunity to have any questions answered about the research to my satisfaction; I have agreed to participate in the study as a volunteer.

Signature of participant: _____

Date: ____/____/_____

Witnesses: 1:

2:

I certify that I have explained the nature and purpose of the study to the participant

Whose study identification number is: ____ ____ ____

Signature of the person obtaining consent: _____

Date: ____/____/_____



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Ref: KNH-ERC/A/442

28 October 2015

Dr. Lado W. Ismail
H58/70796/2014
Dept. of Obs/Gynae
School of Medicine
College of Health Sciences
University of Nairobi

Dear Dr. Lado

Research proposal: Factors associated with acceptability of HIV Test screening among post-abortion care patients at Juba Teaching Hospital, South Sudan; A cross sectional study (P512/07 /2015)

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH-UoN ERC) has reviewed and **approved** your above proposal. The approval periods are 28th October 2015 – 27th October 2016.

This approval is subject to compliance with the following requirements:

- a) Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
- b) All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH/UoN ERC before implementation.
- c) Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH/UoN ERC within 72 hours of notification.
- d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH/UoN ERC within 72 hours.
- e) Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal*).
- f) Clearance for export of biological specimens must be obtained from KNH/UoN-Ethics & Research Committee for each batch of shipment.
- g) Submission of an *executive summary* report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/or plagiarism.

“Protect to Discover”

The Republic of South Sudan



Ministry of Health

21st Jan, 2016

To: Dr. Lado Wani
Republic of South Sudan

RESEARCH APPROVAL LETTER

Dear Wani,

SUBJECT: - Factors Associated with Acceptability of HIV test among Post Abortion Care Patients

I am writing in response to the request of authorization for the submitted study on "**Factors Associated with Acceptability of HIV test among Post Abortion Care Patients at Juba Teaching Hospital**". After having a close review on the proposal, I am glad to inform you that the ethical committee at the Ministry of Health, Republic of South Sudan has approved the study. The ministry acknowledges the importance of the study to integrate HIV testing into post abortion Care services as a routine.

Please, keep the Ministry of Health, Republic of South Sudan and Central Equatoria State Ministry of health informed on the implementation progress. I look forward to the report and recommendations that will be generated from the study. Note that the study should not be published without the consent of the MOH-RSS.
Best regards.


Dr. Richard Loku Lino Laro
Director General of Policy, Planning, Budgeting and Research
Ministry of Health, Republic of South Sudan, Juba



CC: Under Secretary, MOH-RSS
CC: Director General, Preventive Health Services
CC: Director General Central Equatorial State
CC: Director Juba Teaching Hospital

Headquarters, Ministerial Complex. Juba, South Sudan - P.O.Box 88, Juba.