

Prevalence and Factors Associated with Unintended Pregnancies among Women Infected with HIV in Tanzania 2020

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Abstract

Background: Family Planning (FP) programs have helped women globally to avoid millions of unintended pregnancies which could be associated with abortions, morbidity, and mortality on mothers and newborns. Globally, about 220 million women have the unsatisfactory need for FP and 80 million unexpected pregnancies occur each year and in sub-Saharan Africa around 14 million each year. In 2018, the prevalence of unplanned pregnancies among HIV women was estimated to be 44% globally and 68% in the USA, 35% - 65% in sub-Saharan Africa and 71% in South Africa. Pregnancy in HIV infection has been reported to be associated with increased risks of morbidity, mortality and psychological complications such as: depression, suicidal thoughts and anxiety. In the Mbeya region where the prevalence of HIV is high, little is known on the prevalence and the factors associated with unintended pregnancy among HIV positive women.

Objective: Therefore, the present study aimed to determine the prevalence and factors associated with unintended pregnancies among HIV women in Mbeya region.

Method: This was a health facility-based cross-sectional study that was conducted from January to February 2020 among 388 HIV-infected pregnant women at seven Health facilities in Mbeya Region. London Measure of Unintended Pregnancy tool was used for assessing the features of unintended pregnancy. Data were analyzed using STATA version 15.1, where the p-value < 0.05 was considered to be statistically significant.

Results: The prevalence of unintended pregnancy was 61.14% (n = 388). The mean age of the participants was 28.35 (SD = 7.20) years. Among the age group of 25 - 34 years of women 112 (61.20%) had unplanned pregnancies. After adjusted analysis, women with single marital status, private employee, drinking alcohol, do not use contraceptive method, testing for CD4 and HIV Viral load were found to have statistical significant associated on unintended pregnancy. On the use of any contraceptive method, the odds of unintended pregnancy among the women who don't use contraceptive method were 2.08 times more likely than those who use contraceptive method (aPR = 2.08; 95%CI; 1.60 - 2.70) at p < 0.001. Also, the odds of having unintended pregnancy among the women who had tested for low CD4 count (0 - 349 cells/mm³) were 1.28 times more likely than those who had tested CD4 count greater than or equal to 350 cells/mm³ (aPR = 1.28; 95%CI; 1.02 - 1.61) at p < 0.03.

Conclusion: The present study revealed that over half (61.14%) of the HIV-infected pregnant women attending RCH/ANC in Mbeya Region had unplanned pregnancy experience. This indicates unintended pregnancy is one of the major reproductive health problems in PMTCT and also in the study area.

Keywords: Unintended Pregnancy; Family Planning; HIV; PMTCT; RCH, ANC; CD4

Introduction

Globally about 220 million women have the unsatisfactory need for Family Planning and 80 million unintended pregnancies occur each year and in Sub Saharan Africa is around 14million annually [1]. Unplanned pregnancies are one of the barriers for elimination of Maternal to Child Transmission (MTCT) of HIV infection [1]. HIV infection increases the vulnerability of women and infants to morbidity and mortality related to pregnancies and puerperium [1]. However, offering ARVs to HIV pregnant women is the most effective efforts to prevent Maternal to Child Transmission of HIV infection, but still there is a problem of unintended pregnancies which impairs the Prevention of Mother to Child Transmission of HIV infection intervention. In 2018, the prevalence of unplanned pregnancies among HIV women was estimated to be 44% globally and 68% in the USA, 35% - 65% in Sub Saharan Africa and 71% in South Africa [7], however data on unintended pregnancy in Tanzania is scarce.

Methods

Study design and settings

A facility-based cross-sectional study was conducted among HIV-positive pregnant women in the Mbeya Region. The sample size of 388 participants was used in the study. Sampling methods was Simple Random Sampling for identifying the Health Facilities to participate in the study. Also, the numbers of participants in each health facility was determined by probability proportional [12] to determine the numbers of participants at each health facility. The study was done in the Mbeya Region at seven Health facilities that provide antenatal services to HIV pregnant women. Mbeya Region is one of Tanzania's 31 administrative regions located in the country's southwest.

Sample size

The study sample was estimated using the Kish Leslie formula (Kish, 1967):

$$n = DEFF \times Z^2 p [1-p] / \epsilon^2$$

Whereby:

DEFF = Design effect.

n = The minimum estimated sample size.

Z = Standard normal deviate (1.96 for 95% confidence interval).

P = Expected proportion of unintended pregnancy among HIV pregnant women = 35% from study which was done in Cape Town, South Africa, 2017 [12].

ϵ = margin of error (Precision) = 5%.

Therefore:

$$n = 1 \times (1.96)^2 \times 35 \times (100-35) / 5^2 = 349 \text{ participants.}$$

Adjusting for non-response rate of 10%

$$n = \frac{N}{1 - 0.1}$$

Where,

n = Adjusted sample size.

N = Initial sample size (349).

The sample size of 388 participants was included in the study.

Data collection

Structured questionnaire tool used to collect patient information. London Measure of Unplanned Pregnancy was also incorporated in the questionnaire tool to assess the intention of the pregnancy [13] CTC2 and patient files were used to capture clinical information (CD4 counts, HVL, ART Usage).

Data analysis

Data analysis was conducted by using STATA version 15.1. The analysis involved frequent counts, percentages, and p-value for all socio-demographic and clinical characteristics in the descriptive analysis using frequency tables and cross-tabulations between independent and dependent variables. Also, to examine correlates of unplanned pregnancy, Chi-square statistics and binary logistic regression were applied. A multivariable modified Poisson regression model was used to examine risk factors of an unplanned pregnancy. The goodness of fit of the model was explored using the Bayesian information criterion. For the binary outcome regression analysis, LMUP scores were dichotomized into unplanned/ambivalent (LMUP Score 0 - 9) versus planned pregnancy (LMUP Score 10 - 12) [13]. A p-value of < 0.05 was considered as a cut-off point for statistically significant.

Ethical considerations

This study was approved by the Muhimbili University of Health and Allied Sciences (MUHAS) Ethical Review Committee (Ref.No.MU/PGS/SAEC/Vol.7). Permission to conduct the study was also sought from the Mbeya Medical Research and Ethics Committee (MMReC) and the office of District Administrative Secretary of municipalities where these research sites were found. All participants were informed about the purpose of this study and written informed consent was obtained from all respondents who participated in this study.

Results

Social demographic characteristics of the study participants

This study recruited 388 HIV infected pregnant women who were attending antenatal clinics in seven health facilities in during the study period. These health facilities included: Mbeya Zonal Referral Hospital, Chunya, Mbarali, Kyela, Itete, Igawilo, Igogwe District Hospitals. The study participants had a median age of 28 (IQR: 14 - 45) years. Almost half of the respondents, 183 (47.16%) were aged between 25 - 34 years. The majority of the study participants, 183 (47.16%) reported to have primary school education level, 240 (61.86%) were married, 277 (71.39%) reported to use alcohol, 276 (71.13%) were using the contraceptive method. With regards to clinical information, the majority of the study participants, 323 (83.25%) had a parity range of 1 - 2, 310 (79%) had known their HIV status recently (< 5 years). Whereas, for clinical parameters 263 (67.78%) had low CD4 count (0 - 349 cells/mm³), 268 (69.07%) had viral load copies below detection level and 371 (95.62%) were on ART's.

Prevalence of unplanned pregnancy among HIV infected women

In this study 245 (63.14%) HIV infected pregnant women were estimated to have unplanned pregnancy based on the London Measure of Unintended Pregnancy.

Distribution of the proportion of unintended pregnancy among HIV infected women according to age category revealed that 112 (61.20%) women had an unplanned pregnancy, 149 (63.06%) women with a primary level of education had an unplanned pregnancy, 45 (80.36%) women with single marital status, 215 (63.24%) women who had their own business, and 194 (70.04%) women with the habit of alcohol drinking had unintended pregnancies. The proportion of unintended pregnancy among women who were not using contraceptive methods was 207 (75.00%). Also, the proportions of unwanted pregnancy among women who had recently known their HIV status (< 5 years) were 212 (68.39%). Regarding proportions of clinical characteristics, 103 (82.40%) women had low CD4 count (0 - 349 cells/mm³) and 53 (80.30%) women with unsuppressed viral load had an unplanned pregnancy; and 232 (62.53%) women on ART, had unplanned pregnancy.

Factors associated with unintended pregnancies among women infected with HIV

On the modified Poisson regression analysis (reference), marital status, occupation, alcohol drinking, use of the contraceptive method, CD4 count and HIV viral load (15 - 999 and ≥ 1000 copy/ml were associated with unintended pregnancy at p < 0.05. In adjusted analysis, all variables were entered into the model and were adjusted with a Back-ward regression model. The adjusted PR (aPR) findings showed in table 4. The women of single marital status were 1.2 times likely to have unintended pregnancy when compared to married women (aPR = 1.20; 95%CI; 1.03 - 1.39) at p < 0.018. Occupation, HIV infected women who were private employees were 1.86 times more likely to have unplanned pregnancy when compared to government employees (aPR = 1.86; 95%CI; 1.03 - 3.34) at p < 0.037.

Also, HIV infected pregnant women who drink alcohol were 1.36 times more likely to have unplanned pregnancy compared to those who don't drink alcohol (aPR = 1.36; 95%CI; 1.11 - 1.66) at p < 0.003. The women who didn't use contraceptive methods were 2.08 times more likely to have unplanned pregnancy when compared to those who use contraceptive methods (aPR = 2.08; 95%CI; 1.60 - 2.27) at p < 0.001. With regards to clinical parameters, the women who had low CD4 count (0 - 349 cells/mm³) were 1.28 times likely to have unexpected pregnancy when compared to those who had CD4 count ≥ 350 cells/mm³ (aPR = 1.28; 95%CI; 1.02 - 1.61) at p < 0.03. Nevertheless, the women who had partial viral load suppression (15-999 copies/ml) test results were 3.82 times likely to have unintended pregnancy compared to those who had viral load below undetectable level (aPR = 3.82; 95%CI; 1.60 - 9.11) at p < 0.002. Furthermore, women who had virological failure (≥ 1000 copies/ml) were 2.56 times likely to have unintended pregnancy compared to those who had complete viral load below detectable level (aPR = 2.56; 95%CI; 1.24 - 5.28) at p < 0.011.

However, age, education level, time since HIV diagnosis, parity, and use of ART were not associated with unplanned pregnancy among women with HIV infection

Name of HF	Population size (N)	Sampled population (NXF)
Mbeya Zonal Referral Hospital	367	110
Chunya District Hospital	149	45
Mbarali District Hospital	97	29
Kyela District Hospital	206	62
Itete district Hospital	217	65
Igawilo district hospital	146	44
Igogwe designated district hospital	109	33
Total	N = 1291	n = 388

Table 1: Shows the numbers of participants in each health facility..... 17.

SN	Characteristics	Response	Frequency (%)
1	Age	14 - 24 years	121 (21.6)
		25 - 34 years	183 (47.16)
		35 - 45 years	84 (31.19)
2	Education level	College/University	33 (8.51)
		Secondary Education	109 (28.09)
		Primary Education	183 (47.16)
		No Education	24 (6.19)
3	Marital Status	Single	56 (14.43)
		Co-habiting	60 (15.46)
		Divorce	32 (8.25)
		Married	240 (61.86)
4	Occupation	Government Employee	16 (4.12)
		Private Employee	32 (8.25)
		Own business	340 (87.63)
5	Drink Alcohol	No	111 (28.61)
		Yes	277 (71.39)
6	Use of Contraceptive Method	No	112 (28.87)
		Yes	276 (71.13)
7	Time since HIV Diagnosis (Years)	≥ 10 years	26 (6.70)
		5 - < 10 years	52 (13.40)
		< 5years	310 (79.90)
8	Parity	1 - 2 times	323 (83.25)
		≥ 3 times	65 (16.75)
9	CD4 Count results	≥ 350 cells/mm ³	125 (32.22)
		0 - 349 cells/mm ³	263 (67.78)
10	HIV Viral load results	Undetectable level	268 (69.07)
		15 - 999 copies/ml	54 (13.92)
		≥ 1000 cells/mm ³	66 (17.01)
11	ART Use	Yes	371 (95.62)
		No	17 (4.38)

Table 2: Socio-demographic and Clinical characteristics of HIV-infected women attending

RCH/ANC services in the Mbeya region (n = 388) 22.

Variables	Had Planned Pregnancy	Had Unplanned Pregnancy	Chi-square test
	n (%)	n (%)	p-value
Age			
14 - 24	39 (32.23)	82 (67.77)	0.445
25 - 34	71 (38.80)	112 (61.20)	
35 - 45	33 (39.29)	51 (60.71)	
Education Level			
No Education	5 (20.83)	19 (79.17)	0.204
Primary Education	82 (36.94)	149 (63.06)	
Secondary Education	46 (42.20)	63 (57.80)	
College/university	10 (30.30)	23 (69.70)	
Marital Status			
Divorce	12 (37.50)	20 (62.50)	0.009
Single	11 (19.64)	45 (80.36)	
Co-habiting	18 (37.00)	42 (70.00)	
Married	102 (42.50)	138 (57.50)	
Occupation Status			
Government employee	10 (62.50)	6 (37.50)	0.04
Own business	125 (36.76)	215 (63.24)	
Private employee	8 (25.00)	24 (75.00)	
Alcohol Drinking			
Don't drink	60 (54.05)	51 (45.95)	<0.001
Drink	83 (29.96)	194 (70.04)	
Use of Contraceptive Method			
No	69 (25.00)	207 (75.00)	<0.001
Yes	74 (66.07)	38 (33.93)	
Time since HIV diagnosis			
≥ 10 years	15 (57.69)	11 (42.31)	<0.001
5 years - < 10 years	30 (57.69)	22 (42.31)	
< 5 years	98 (31.61)	212 (68.39)	
Parity			
≥ 3 times	35 (53.85)	30 (46.15)	0.002
1 - 2 times	108 (33.44)	215 (66.56)	
CD4 Counts			
0 - 349 cells/mm ³	22 (17.60)	103 (82.40)	<0.001
≥ 350 cells/mm ³	121 (46.01)	142 (53.99)	
HIV Viral Load			
Undetectable level	121 (45.15)	147 (54.85)	<0.001
15 - 999 copies/ml	9 (16.67)	45 (83.33)	
≥1000 copies/ml	13 (19.70)	53 (80.30)	
ART Usage			
Used	139 (37.47)	232 (62.53)	0.244
Not Used	4 (23.53)	13 (76.47)	

Table 3: Distribution of pregnancy intention among HIV infected women according to socio-

demographic and clinical characteristics (n = 388). 24.

Modified Poisson regression showing predictors of Unplanned Pregnancy					
Variables	Crude Analysis			Adjusted Analysis	
	n	cPR (95%CI)	P-value	aPR (95% CI)	P-value
Age					
35 - 45	51	Ref		Ref	
14 - 24	82	1.1 (0.90-1.37)	0.309	0.83 (0.67-1.01)	0.071
25 - 34	112	1.0 (0.81-1.24)	0.94	0.88 (0.73-1.05)	0.174
Education					
College/university	23	Ref		Ref	
No Education	19	1.13 (0.83-1.54)	0.413	1.14 (0.86-1.50)	0.347
Primary Education	149	0.90 (0.70-1.15)	0.427	1.00 (0.80-1.24)	0.998
Secondary Education	63	0.82 (0.62-1.09)	0.185	0.97 (0.77-1.22)	0.815
Marital Status					
Married	138	Ref		Ref	
Co-habiting	42	1.21 (0.99-1.48)	0.052	1.18 (0.98-1.42)	0.069
Divorce	20	1.08 (0.81-1.45)	0.573	1.09 (0.87-1.37)	0.414
Single	45	1.39 (1.17-1.65)	<0.001	1.20 (1.03-1.39)	0.018
Occupation					
Government employee	6	Ref		Ref	
Private employee	24	2.67 (1.02-3.88)	0.041	1.86 (1.03-3.34)	0.037
Own business	215	1.68 (0.89-3.19)	0.109	1.53 (0.87-2.69)	0.138
Drinking Alcohol					
Don't Drink Alcohol	51	Ref		Ref	
Drink Alcohol	194	1.52 (1.22-1.89)	<0.001	1.36 (1.11-1.66)	0.003
Use of Contraceptive Method					
Yes	38	Ref		Ref	
No	207	2.21 (1.69-2.88)	<0.001	2.08 (1.60-2.70)	<0.001
Time since HIV diagnosis (Years)					
≥ 10 years	11	Ref		Ref	
< 5 years	212	1.61 (1.02-2.54)	0.039	1.40 (0.95-2.08)	0.086
5 years - < 10 years	22	1.28 (0.57-1.73)	1	0.98 (0.61-1.57)	0.08
Parity					
≥ 3 times	30	Ref		Ref	
1 - 2 times	215	1.44 (1.09-1.89)	0.009	1.18 (0.92-1.51)	0.18
CD4 Testing					
≥ 350 cells/mm ³	263	Ref		Ref	
0 - 349 cells/mm ³	103	1.52 (1.32-1.75)	<0.001	1.28 (1.02-1.61)	0.03
HIV viral load Testing					
Undetectable level	147	Ref		Ref	
15 - 999 copies/ml	45	1.51 (1.29-1.78)	<0.001	3.82 (1.60-9.11)	<0.001
≥ 1000 copies/ml	53	1.46 (1.24-1.72)	<0.001	2.56 (1.24-5.28)	0.002
ART usage					
Used	232	Ref		Ref	
Not Used	13	1.22 (0.92-1.61)	0.152	0.92 (0.70-1.22)	0.606

Table 4: Modified Poisson regression analysis for factors associated with unplanned pregnancy 27.

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