



Original Research



Fertility Desires of HIV-positive Women Attending Care and Treatment Clinics (CTC) in Urban Areas in Tanzania

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ABSTRACT

Introduction: Reproductive concerns by People Living with HIV (PLHIV) are matters that are important for both individual and general public health. We described fertility desire among HIV-positive women attending Care and Treatment Clinics (CTC) and determined factors for having such a desire to get children in urban areas of Dar es Salaam and Dodoma in Tanzania.

Material and Methods: Cross-sectional study for which primary data were collected in a random sample of women of reproductive age (15-49 years) after accessing HIV care and treatment services. A survey was conducted among HIV-positive women receiving anti-retroviral treatment to document service needs, service quality, and fertility preferences. A Univariate model was used to examine the relationship between the dependent and the independent variables, and all associations were taken into account in the final model.

Results: Among 691 participants, 282 (40.8%) women living with HIV have fertility desire. Women aged above 25 experienced a reduction in the odds of fertility desire by 56% (p-value =0.003) compared to the reference group of women aged 25 years or less. Fertility desire was predicted to have two times as much growth with 1 to < 3 years (p-value=0.02) and 5 or 5+ years (P value =0.01) time lapse since the debut of ART, compared to the group of women who were on ART for 3 years but less than five years.

Conclusion: Our data has not only reconfirmed the importance of ART and PMTCT services to PLHIV but also contributed to evidence on their value addition in terms of the creation of resilience to normal fertility family life after debut HIV diagnosis.

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INTRODUCTION

Globally, there are 37.7 million people living with Human Immunodeficiency Virus (HIV); women and girls account for more than half of all new infections [1]. In Tanzania, 1 million women aged 15 years and above are HIV positive, with young women aged 15–24 years being twice more likely to be living with HIV than their male counterparts [2]. Although the reproductive roles are important social and biological determinants of health across sexes, women might be particularly disadvantaged, and further, in those living with HIV, it might lead to increased vulnerability to maternal-related challenges, including the risk of HIV transmission to the fetus [3–4]. Fertility desire, which refers to an individual

or a couple's intention to have children in the future, among People Living with HIV (PLHIV) as such is the subject of interest using health facility-based data in resource-limited settings.

Given the considerable burden of HIV prevalence in women of childbearing and sexually active age, concerns related to further biological children are issues of public health importance [5–6]. Whereas interventions are definitely necessary, both within and beyond the health system, there remains considerable heterogeneity across different settings and countries on some key factors of a wish to have another child in the future, as exhibited by married or cohabiting couples regardless of their HIV status, fertility desired [7].

Meta-analyses of 50 and 20 articles showed that the PLHIV who are on Anti-Retroviral Treatment (ART) are males younger than 30, married/ cohabiting, have received secondary education or above, and are childless have a higher prevalence of fertility desire [8–10] and, respectively, no association neither with ART, sex or educational attainment [11]. Elsewhere, amongst Women Living with HIV (WLHIV), a higher proportion was more likely to be associated with no desire, whereby factors associated with such a desire were age, education level, and household wealth status [12–13].

In Tanzania, increased fertility desire was associated with HIV disclosure, good perceived health status, and CD4 count ≥ 200 cells for both sexes [14] and also, if someone was male, had primary education, was married/cohabitating, and had fewer children [15] or not having them at all [16]. The need for further analytical efforts on this area of childbearing desire by Women Living with HIV (WLHIV) is justified, in this case, by current limitations on the availability of evidence in Tanzania as well as an observed extent of heterogeneity of what is so far known on the subject.

MATERIAL AND METHODS

The study included HIV-positive women aged 18-45 years who visited 25 health facilities with CTC in Dodoma and Dar es Salaam, who were randomly selected right after accessing HIV care and treatment services. Dar es Salaam is Tanzania's largest city and

commercial center, with a population of over 6 million people. The city is one of the busiest places in East Africa and has a high concentration of trade, manufacturing, and so other service-related activities. Dodoma is the national capital and home of the legislative assembly, with a population of 2,083,588 people (2012 estimate). It is located in central Tanzania, covers 41,311 square kilometers (15,950 square miles), and is divided into seven administrative districts, including Dodoma Municipal, in Fig. 1. It is a map of Tanzania within East Africa, showing the location of Dar es Salaam and Dodoma and the visited health facilities.

Validated standard questionnaires were used to conduct exit interviews, whereby date of interview, level of health facility, administrative categories up to street level where the women came from, birth date, date of start of ART, demographic questions, satisfaction with CTC and Prevention of Mother-to-Child Transmission (PMTCT) services, family planning services at the CTC, pregnancy and plan for more children questions were asked. Fertility desire was considered as an outcome variable, while the consideration of independent variables was based on literature review. Factors influencing the fertility desire among HIV-positive women were isolated and related to the kind of questions asked during the exit interview. Therefore, age of the women, marital status, duration on ART, education level, income generation, home belonging, relation with the household head, HIV status of the last born, confidentiality on participant sero status with

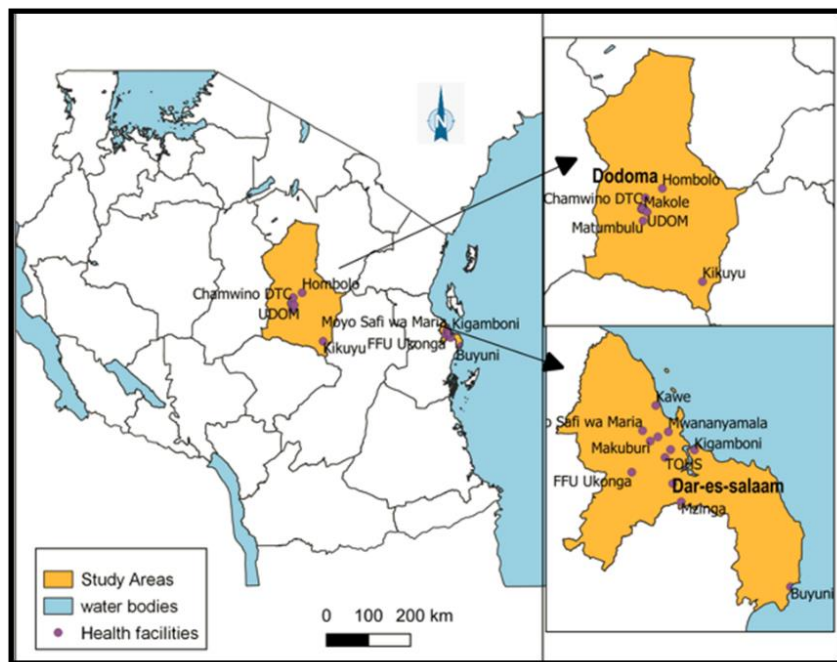


Fig. 1. Map of Tanzania, showing the location of Dar es Salaam and Dodoma and health facilities visited. Source: ArcGIS desktop output by Aleswa Zebedayo (author)

Health Care Provider (HCP), How do HCP treat participant during service provision, Sero status of participant's partner and How many Households (HHs) are there in the area participants are living as well as number of people living in participant house and are eating together were considered as the independent variables.

Univariate analysis was done on all proposed independent variables, and all those variables that showed association were promoted into the final multivariate model. Sampling weight was not applied, analysis tools /software were STATA version 15, and Microsoft Word was used to document the findings.

The research ensured participants' safety through compliance with international and local ethics guidelines. Ethical approval from the relevant Institutional Review Board (IRB) at Ifakara Health Institute and from the National Institute for Medical Research in Tanzania and permission to visit health facilities from the President's Office, Regional Administration, and Local government were pursued. Interviewers were trained to work with the participant respectfully and safely with emphasis on ensuring written informed consent is obtained, and risks are minimized as much as possible. Precautions were taken to eliminate risks of breach of confidentiality by using unique identifiers for study participants instead of names and the use of password-protected computers during data collection and analysis.

RESULTS

Description of the Study Population

Table 1 presents the descriptive information of the population under the study. There were 691 HIV-positive women interviewed during their CTC visits in Dar es Salaam 345 (50%) and Dodoma 346 (50%) regions with Council distribution as followed, Dodoma Municipal Council (346, 50.07%), Kinondoni (83, 12.01%), Ilala (125, 18.09%), Temeke (34, 9.99%), Ubungo (69, 12%) and Kigamboni (34, 4.92 %) with mean age of 35.5 years. All but half, 323 (46.7%) of them were married or cohabiting, and 615 (89%) of them had been to school, predominantly with a primary level of education 403 (65.53%). The prevalence of family planning use was 52%, and all but few said that their HIV status was known to their partners. The prevalence of desire to have another baby was 40.8%, and nearly half (323, 46.74%) had 5 or more years of experience in ART.

Table 2 is a summary of the measure of the relationship between fertility desire among HIV-positive women with various socioeconomic and other factors at the Univariate level, whereas the results of the factors influencing fertility desire among HIV-positive women in the full model are shown in **Table 3**. Eight out of

sixteen variables in the data set were not included in the final model because their significance level was relatively low, as estimated during the stepwise regression process.

Women who had 3-4 biological children experienced a reduction in the odds of fertility desire by 55% (p-value <0.01) and by 95% (p-value =0.02), overall and in Dar es Salaam respectively. Fertility desire was predicted to grow by about 1.57 (p-value =0.024) times with not receiving education on family planning. Being divorced, separated, or widowed was associated with a reduction in the odds of fertility desire by 56% (p-value <0.01), and women in age categories of 25 to < 45 and 45+ years' experienced a reduction of 56 % (p-value <0.01) and 87% (p-value =0.023) as compared to those aged less than 25 years. Fertility desire was predicted to grow by twice as much in women with experience of 1 to < 3 (OR=2.061, p-value =0.017) and 5+ years (OR=2.125, p-value <0.01) on ART as compared to those with less than 1 year but shown no association amongst those who had 3 to < 5 years' duration of ART use. When considered alone, those who had 3 to < 5 years' experience with ART (Not shown) experienced a reduction in the odds of fertility desire not only with having 3-4 biological children as before (93%, p-value <0.01) but also amongst those who had work within last 12 months (89%, p-value =0.04) and only in women aged 45+ years' experienced reduction of 94 % (p-value =0.018) but did not show association in those aged 25 to < 45 years as before, as compared to those aged less than 25 years.

DISCUSSION

We have reported a 40.8% prevalence of fertility desire amongst PLHIV women in Tanzania settings along with decreasing fertility desire amongst PLHIV women, with increasing age and particularly after 45 years old. The fact that women in age categories of 25 to < 45 and 45+ years experienced a reduction of 56 % (p-value <0.01) and 87% (p-value =0.023) as compared to those aged less than 25 years might suggest that adherence to ART and PMTCT services by PLHIV have got value addition in keeping the good state of PLHIV woman and hence bring back such desire to somewhat an average level of what is expected in the general population [17]. However, this study did not inquire if the desire was a wish or an intention, nor did it inquire whether any effort was made towards having another baby, such as attempting consultation from a PMTCT clinic, meeting with a gynecologist, and so on, which could have helped in distinguishing a wish from an intention.

Duration of using ART has shown a somewhat varying pattern of fertility desire, with those with 1 to 3 years and 5 or more years having significant affirmative

desire but not amongst those who have been on ART for 3 to less than 5 years. The health system is such that once pregnant and tested positive, a woman would instantly have her debut ART, and after delivery, an exposed child undergoes dried blood spot (DBS) until 18 months of age before final HIV status can be concluded. Such a 2-year time-lapse, almost of observation time, might influence fertility desire for the middle category of 3 to less than 5 years since they started ART services.

CONCLUSION

In the context of heterogeneity literature based on some key factors for fertility desire and interventions necessary, both within and outside the health system, to guide inclusion in practice/policies, this study complements previous work findings that indicated that fertility desires were associated with ART. The data offers further indications about the need for profound consideration of reproductive health services amongst Women Living with HIV, not only for their individual health needs but also for public health gains at large. The ART and PMTCT services may, as such, have value addition in establishing resilience to normal fertility family life after a first HIV diagnosis.

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CONFLICT OF INTEREST

No potential conflict of interest was reported by the authors.

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Table 1: Socio-demographic Characteristics (n=691)

Study Population	Dar es Salaam n (%)	Dodoma n (%)	All n (%)
HIV Positive Women	345 (50)	346 (50)	691 (100)
Age			
15-24	31 (8.99)	29 (8.38)	60 (8.68)
25-34	131 (37.97)	116 (33.53)	247 (35.75)
35-49	183 (53.04)	201 (58.09)	384 (55.57)
Mean value	35.0	36.0	35.5
Marital Status			
Not married	64 (18.55)	66 (19.08)	130 (18.81)
Married/cohabiting	152 (44.06)	172 (49.71)	324 (46.89)
Divorced/separated/Widow	129 (37.39)	108 (31.21)	237 (34.3)
Educational Background			
Yes	326 (94.49)	289 (83.53)	615 (89%)
No, but can:	19 (5.51)	57 (16.47)	76 (11%)
Read and write	5 (26.32)	0	5 (6.58)
Only read	3 (15.79)	13 (22.81)	16 (21.05)
Cannot read and write	11 (57.89)	44 (77.19)	55 (72.37)
Education level			
Primary Education	204 (62.58)	199 (68.86)	403 (65.53)
Secondary school education	104 (31.90)	61 (21.11)	165 (26.83)
Higher Education	18 (5.52)	29 (10.03)	47 (7.45)
Currently Pregnant?			
Yes	37 (10.72)	15 (4.34)	52 (7.53)
No	308 (89.28)	331 (95.66)	639 (92.47)
Family Planning use			
Yes	177 (51.30)	183 (53.04)	360 (52.17)
No	168 (48.70)	162 (46.96)	330 (47.83)
Does your Partner Know Your HIV Status?			
Yes	140 (92.11)	166 (96.51)	306(94.44)
No	12 (7.89)	6 (3.49)	18(5.56)
Partners HIV Status			
HIV Positive	70 (46.05)	65 (38.01)	135 (41.80)
HIV Negative	63 (41.45)	89 (52.05)	152 (47.06)
Don't know	19 (12.50)	17 (9.94)	36 (11.15)
Partner on ART?			
Yes	68 (97.14)	65 (100)	133 (98.52)
No	2 (2.86)	0	2 (1.48)
House Tenure			
Own House	75 (21.74)	163 (47.11)	238 (34.44)
Renting	189 (54.78)	127 (36.71)	316 (45.73)
Living in a family (parents, close relatives, others)	81 (23.48)	56 (16.18)	137 (19.88)
Source of Income			
Self-employed	307 (88.99)	321 (92.77)	455 (65.85)
Employed	38 (11.01)	25 (7.23)	63 (9.12)
Number of Children Preferred			
<3 Children	179 (51.88)	149 (43.06)	328 (47.47)
3-4 Children	115 (33.33)	121 (34.97)	236 (34.15)
>4 Children	51 (14.78)	76 (21.97)	127 (18.38)
Duration on ART			
< 1 year	48 (13.91)	51 (14.74)	99 (14.33)
1 to < 3 years	81 (23.48)	70 (20.23)	151 (21.85)
3 to < 5 years	66 (19.13)	52 (15.03)	118 (17.08)
5 or 5+ years	150 (43.48)	173 (50.00)	323 (46.74)
Desire to have another Baby			
Prefer another child	138 (40.00)	144 (41.62)	282 (40.81)
Prefer no more	207 (60.00)	202 (58.38)	409 (59.19)

Table 2. Factors Influencing Fertility Desire Among HIV-positive Women Univariate Modal

Variables	OR	p-value
Age		
25-34	0.368	0.003
35-49	0.090	0.000
Current user of FP(No)	0.995	0.975
Marital Status		
Married/cohabiting	0.455	0.000
Separated/divorced/widow	0.214	0.000
Employment		
Employed	1.024	0.932
Not employed	1.308	0.137
Any work done within the past months	1.542	0.031
Relationship with the household head		
Head of the household	x	x
Husband/wife/partner	1.246	0.195
Other relationship	1.598	0.040
Income per month		
50,000-200,000	0.794	0.176
300,000-500,000	0.977	0.929
> 500,000	1.284	0.728
Receive education on FP (No)	1.417	0.037
Confidentiality on your sero status with HCP		
Big problem	1.000	x
Minor problem	3.000	0.472
Not a Problem	2.077	0.528
No answer	1.000	x
How do HCP treat you during service provision?		
No problem	1.250	0.692
Don't know	1.000	x
I don't want to disclose my sero status	1.184	0.382
Can you suggest this facility to others (no)	1.125	0.472
My husband proposed this service (FP) to me	1.298	0.597
House belonging		
Renting	1.740	0.002
Living in a family	1.869	0.005
How many HHs are there in the area where you are living?		
3-4 households	1.679774	0.014
more than 4 households	1.546723	0.016
Number of people living in your house and you are eating together		
4-6 people in households	0.599308	0.002
More than 6 people in households	0.70009	0.196
Number of children preferred		
3-4 Children	0.289	0.000
> 4 Children	0.826	0.362
Sero status of your partner		
Not Infected	0.992	0.973
Don't know	1.062	0.873
Living with the partner (living somewhere else)	1.632	0.250
HIV test results for your last-born		
Negative	1.036	0.930
Don't know	1.08	0.926
Attend school		
Ever been to school	0.639	0.085
Still in school	0.622	0.192
Duration on ART		
1 to < 3 years	1.715	0.040
3 to < 5 years	0.887	0.671
5 or 5+ years	1.000	0.999

Table 3: Factors Influencing Fertility Desire Among HIV-positive Women Multivariate Modal

Desire	Variables	Dar es Salaam		Dodoma		All	
		OR	p-value	OR	p-value	OR	p-value
Number of children having							
	3-4 Children	0.052	0.020	0.053	0.095	0.447	0.000
	> 4 Children	13.864	0.122	0.372	0.462	0.984	0.950
Number of people in the household							
	4-6 people in households	0.602	0.688	1.154	0.892	0.763	0.207
	More than 6 people in households	8.712	0.270	0.804	0.901	0.577	0.124
Households number homes steady							
	3-4 households	3.561	0.286	5.420	0.354	1.179	0.590
	More than 4 households	6.868	0.090	12.899	0.169	0.952	0.863
House belonging							
	Renting	0.861	0.909	0.115	0.277	1.082	0.785
	Living in a family	0.834	0.898	3.073	0.409	1.416	0.255
Family planning education							
	Yes	x	x	x	x	x	x
	No	1.052	0.973	0.065	0.112	1.571	0.024
Any work done within the past 12 month							
	Yes	x	x	x	x	x	x
	No	1.000	x	1.223	0.835	0.781	0.308
Marital Status							
	Married/ cohabiting	5.126	0.174	1.855	0.557	0.901	0.701
	Divorced/separated/Widow	1.619	0.666	0.265	0.334	0.443	0.003
Age group							
	Less than 25 years	1.000	x	x	x	x	x
	25 years to less than 45 years	4.487	0.092	0.412	0.542	0.443	0.023
	45 years and more	1.000	x	0.134	0.163	0.131	0.000
Duration on ART							
	1 to < 3 years	x	x	x	x	2.061	0.017
	3 to < 5 years	1.000	x	1.000	x	1.213	0.551
	5 or 5+ years	x	x	x	x	2.125	0.007

x = no value