



Factors Associated with Unmet Needs for Family Planning among People Living with HIV/AIDS in the South-South Region of Nigeria

Ifeoma C. Ofurum ^{a*}, Onyinye G. Mba ^b
and Cosmos E. Enyindah ^c

^a School of Public Health, University of Port Harcourt, Rivers State, Nigeria.

^b Department of Community Medicine, University of Port Harcourt, Rivers State, Nigeria.

^c Department of Obstetrics and Gynaecology, College of Health Sciences, University of Port Harcourt, Port Harcourt, Nigeria.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JAMPS/2023/v25i1594

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/96800>

Original Research Article

Received: 23/10/2022

Accepted: 29/12/2022

Published: 10/02/2023

ABSTRACT

Background: Family planning is an important part of reproductive health which assists couples and individuals to make decisions regarding the timing, spacing, as well as the number of desired children. For individuals living with HIV, this can be challenging, as access to reproductive health services may be hampered by a range of factors, thus causing an unmet need for family planning.

Aim: To investigate the factors associated with unmet needs for family planning among people living with HIV/AIDS in the South-South Region of Nigeria.

Study Design: Facility-based cross-sectional survey.

*Corresponding author: E-mail: Ifeoma.ofurum@uniport.edu.ng, ofurumifeoma95@gmail.com;

Place and Duration of Study: The study was carried out at the HIV clinics of Federal Medical Centre (FMC), Yenagoa and Otuasega Cottage Hospital (OCH), Ogbia in Bayelsa state.

Methodology: Six hundred (600) participants were recruited using a simple random sampling technique. An interviewer-administered questionnaire was used to collect data. Data obtained from the study were analyzed and presented as frequencies and percentages. Chi-square and Binary logistic regression were used to test for association between variables. Statistical significance was set at $p=0.05$.

Result: The response rate was 100%. The unmet family planning needs were identified in 43.5% of the study population. Duration of status awareness ($X^2=9.983$, $P=0.002$), ART duration ($X^2=10.410$, $P=0.001$), number of sexual partners ($X^2=36.665$, $P=0.001$) were significantly associated with unmet planning family need. Likewise, age group ($X^2=22.988$, $P<0.001$), gender ($X^2=9.327$, $P=0.002$), and religion ($X^2=17.243$, $P=0.001$) were also significantly associated with unmet family planning needs. Binary logistic regression showed that respondents who were 40 years or more had 2.15 odds of unmet family planning needs compared to those less than 40 years. Also, respondents who had one sexual partner had 2.98 odds of unmet family planning needs when compared to respondents who had multiple sexual partners.

Conclusion: There is a high prevalence of unmet family planning needs among people living with HIV/AIDS in the South-South region of Nigeria.

Keywords: Met needs for family planning; contraceptive needs; modern family planning methods; HIV/AIDS; Bayelsa State; Sub-Saharan Africa.

1. INTRODUCTION

Recent epidemiological data indicate that HIV remains a global public health challenge that has contributed to the morbidity as well as mortality of infected individuals. The infection has accounted for more than 40.1 million deaths over the last four decades [1]. The estimated number of People Living with HIV/AIDS (PLWHA) at the end of 2021 was roughly 38.4 (33.9–43.8) million, and sub-Saharan Africa was the most affected region, having 25.6 million PLWHA representing approximately 70% of all people with HIV infection [2]. Nigeria with a population of 216,746,934 as of 2021 had about 1,900,000 HIV-infected individuals (15 years and above). Of this number, 1,100,000 were females, and 170,000 were children (0-14 years) [3]. Nigeria was reported in 2014 to account for 9% of the global population of people living with HIV [4]. Data from UNICEF [5] has shown that in the year 2020, an estimated 130,000 children were living with HIV in Nigeria. The risk of vertical transmission of HIV from mother to child has made family planning a vital measure for the control of HIV infection in children given that it is by far the main source of HIV infection in children below the age of 15 years. In addition, family planning also prevents pregnancy-related morbidity and mortality associated with unintended pregnancy among women of reproductive age [6]. Decisions regarding pregnancy and childbearing can be very complex and tasking for individuals (or couples) and even

more so among those living with HIV/AIDS [7]. Although some studies have shown that a good number of individuals who were HIV positive indicated a decreased desire for more children for different reasons when their status was confirmed, yet most of these individuals have unmet family planning needs [8]. Unmet family planning needs in women apply to those who are married or in unions, fecund and are sexually active, who want to stop childbearing or delay their next birth by at least two years, but are not using any method of contraception, either modern or traditional (DHS, 2014). However, this definition can be misleading as several studies have reported that male partner involvement and preferences have played a major role in such decision-making [9-11]. For example, studies have shown that male dominance in Africa greatly affects women's ability to access and use any form of contraceptives [12]. Hence, men's preferences regarding contraceptive use are a stronger determining factor than women's [13]. Therefore, considering the unmet needs of couples rather than just females would likely provide more information regarding family planning uptake [14].

Unmet needs for family planning are a robust indicator of the contraceptive utilization gaps. Current evidence indicates that unmet family planning needs among women living with HIV remain high in sub-Saharan Africa [15-17]. Different studies in various regions in sub-Saharan Africa [18,19] have reported varying

prevalences of unmet family planning needs among women living with HIV and a variety of associated factors indicating region-specific differences and dynamics of unmet family planning needs. HIV-positive clients who do not use contemporary family planning are more likely to experience unintended pregnancies, which increases their risk of Mother-to-child-transmission (MTCT) and unsafe abortion [20].

Even when a couple is adequately motivated to avoid pregnancy, numerous social, cultural, psychological, geographical, and economic obstacles prevent them from starting and maintaining contraception [8]. Such obstacles include the marital status of clients, their educational level, the non-involvement of the male partners, information available to the couples, perceived low risk for pregnancy, couples' disagreement on contraception, and the number of children living [21].

Low contraception uptake and high unmet family planning needs are evident in Nigeria. For example, a study conducted by Sinai et al. [22], in Kaduna State of Nigeria, showed that only one-fifth of all married women were on modern contraceptives. Nigeria as of 2019, had the average births per woman over their lifetime or Total Fertility Rate (TFR) as 7%, which incidentally was the highest in the world for that

year [23]. According to the statistics released by Statista Research Department [24], the contraceptive prevalence rate for all Nigerian women in the year 2022 was 18%, while among the married ones or those in a union (between the ages of 15 and 49 years), it was 21%.

In the South-South region of Nigeria, Bayelsa state had the second-highest total fertility rate of 4.8 next to Delta State with 5.2 [25]. Bayelsa State is one of the states in the South-South region of Nigeria and is called "the glory of all lands.". It is cosmopolitan in nature and is endowed with an abundance of various natural reserves of crude oil and natural gas resources. As a result, both local and foreign oil and gas firm employees and investors have been drawn to these resources. Therefore, the state has a lot of economic, commercial, and political activities going on within it. The nightlife is extremely vibrant and promotes transactional sex as well as other sexual behaviours that could raise the prevalence of HIV. In Bayelsa State, there are numerous establishments where various types of alcohol sales and their use are permitted. These locations include bars, pubs, beer gardens, clubs, and "joints." [26]. Along with other illegal substances, their unchecked use exposes users to an elevated risk of unsafe sexual behaviour and sexual assault [27].

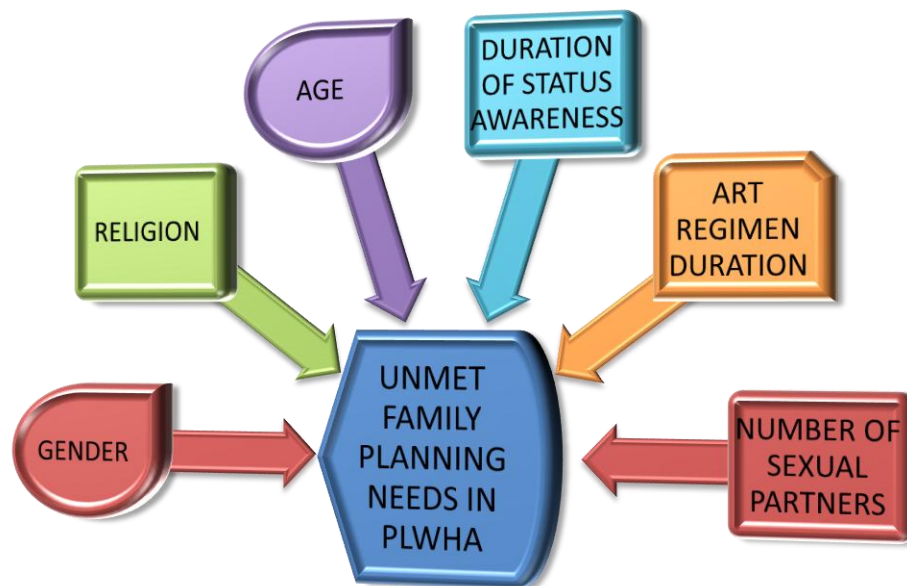


Fig. 1. Conceptual framework showing factors associated with unmet family planning needs in PLWHA

Before this study, there seemed to be a paucity of data regarding the unmet needs for family planning and the associated factors among people living with HIV/AIDS (PLWHA) in Bayelsa State, a State in the South-South region of the country [25].

The study, therefore, aimed to investigate the prevalence and associated factors of unmet family planning needs among PLWHA in the South-South region of Nigeria with Bayelsa State as a case study.

1.1 Conceptual Framework

Fig. 1 outlines the factors which may be associated with unmet family planning needs in PLWHA who are on ART. These factors include Gender, religion, age, duration of status awareness, ART regimen duration, and the number of sexual partners.

2. METHODOLOGY

2.1 Study Design and Study Site

This cross-sectional survey was carried out in Bayelsa state, Nigeria. The choice of the facilities where the study was carried out was achieved by independently balloting for the secondary and tertiary health facilities. Federal Medical Centre (FMC), Yenagoa, a tertiary health facility and Otuasega Cottage Hospital (OCH), Ogbia, a secondary health facility were selected. The study was carried out between August and November 2021.

2.2 Sample Size Determination

The sample size was calculated using the Cochran formula:

$$n = \frac{Z^2 \times P(1-P)}{e^2} \quad [28]$$

where:

n = least required sample size

z = standard score at a confidence level of 95% (1.96)

P = Prevalence of unmet family planning needs among HIV-positive women, 38.5% (Njuguna, Ilovi, et al. 2017).

e = acceptable margin of error at 5% (0.05)

Interpolating, n will be:

$$= \frac{1.96^2 \times 0.385(1-0.385)}{.05^2} = 364$$

With a Design Effect of 1.5 [29] = 1.5 x 364 = 546

10% for questionnaire non-response error was also added.

$$n + n (10\%) = 546 + (546 \times 0.10) = 600 \text{ participants}$$

A total of 600 participants was used for the study.

2.3 Participants

Study participants were selected using a multistage sampling technique. Following selection of health facilities by balloting, the lists of PLWHA who visited the health facilities were generated from the database of the HIV clinics. PLWHAs who attended the HIV clinics, had been on ART for at least one year, women of reproductive age (15-49 years), men (aged 18-60 years) who were sexually active, and individuals married or in a union were included. While acutely ill persons, or those unable to communicate were excluded. The 1500 patients in FMC, constituted the sampling frame from which participants were drawn from the clinic. While the sampling frame for OCH was 150 patients. The probability proportional to size (PPS) method was used to determine the number of participants to be selected from each facility. This amounted to 540 participants from FMC, Yenagoa and 60 participants from OCH, Ogbia. A total of 600 participants were recruited for this study.

2.4 Study Instrument and Data Collection

An interviewer-administered semi-structured questionnaire which was adapted from United Nations-funded survey questionnaires used for Fertility & Family Survey (FFS), and Reproductive Health Survey (RHS) conducted in European countries [30] was used to collect data in this study. The questionnaire was divided into three sections covering socio-demographic characteristics, reproductive desires, and family planning commodities uptake.

2.5 Determination of Unmet Family Planning Need

In this study unmet family planning needs consisted of:

Unmet need for spacing which included pregnant women with mistimed pregnancy plus fecund

women who were not pregnant or amenorrheic and said they did not want to give birth for the next 2 years or more but were not on any family planning method.

Unmet need for limiting which referred to pregnant women with an unwanted pregnancy and fecund women who were not pregnant or amenorrheic and were not using any form of family planning and yet did not desire any more children [21].

In addition, the unmet need for family planning in men was also considered in this study to get a more reliable figure [31].

2.6 Statistical Analysis

The data obtained were entered into an excel file and cleaned before exporting into the software, IBM Statistical Product and Service Solution (SPSS) version 25 for analysis. Data obtained from the study were analyzed and presented as frequencies and percentages. Chi-square and Binary logistic regression were used to test the association between variables. Statistical significance was set at $p < 0.05$.

3. RESULTS AND DISCUSSION

A total of 600 PLWHA were recruited and a response rate of 100% was recorded in this study. The study comprised of 160 males (26.7%) and 440 females (73.3%). Most of the

respondents 340(56.7%) were between 31-40 years, and 338 (56.3%) had vocational/technical education as their highest level of education. The mean age of the respondents was 34.6 ± 6.4 years (Table 1).

Fig. 2 shows that 43.5% of the respondents had unmet family planning needs.

Test of association showed that duration of status awareness ($X^2=9.983$, $P=0.002$), ART duration ($X^2=10.410$, $P=0.001$), number of sexual partners ($X^2=36.665$, $P=0.001$) were significantly associated with having unmet family need. Likewise, the age group of respondents ($X^2=22.988$, $P < 0.001$), gender of the respondents ($X^2=9.327$, $P=0.002$), and religion ($X^2=17.243$, $P=0.001$) were also significantly associated with having unmet family planning needs (Table 2). Regression analysis showed that respondents who were 40 years or more were 2.15 times more likely to experience unmet family planning needs compared to those less than 40 years. Also, respondents who had one sexual partner were 2.98 times more likely to experience unmet family planning needs when compared to respondents who had multiple sexual partners (Table 3).

3.1 Analytical Framework

An algorithm for estimating unmet family planning need among PLWHA.

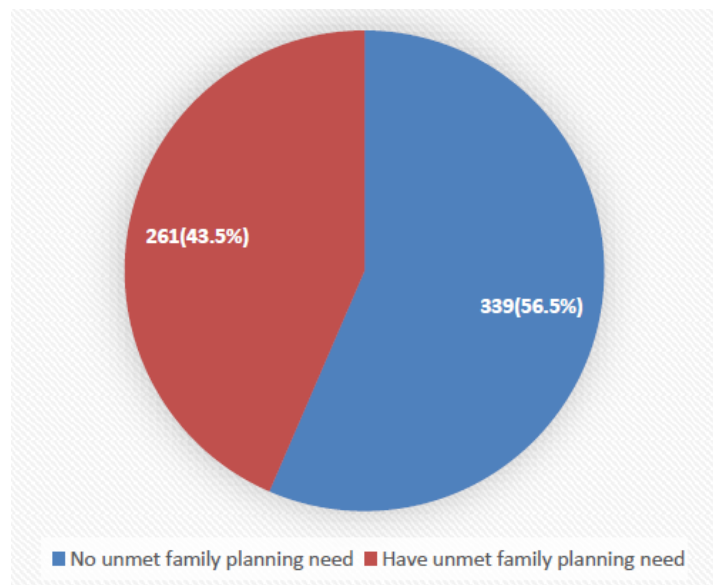


Fig. 2. Percentage distribution of respondents who had ever had unmet family planning need

Table 1. Social Demographic characteristics of PLWHA

Variable	Frequency (n=600)	Percent (%)
Sex		
Male	160	26.7
Female	440	73.3
Age group		
≤20 years	15	2.5
21-30 years	140	23.3
31-40 years	340	56.7
41-50 years	100	16.7
> 50 years	5	0.8
Mean ± SD	34.6 ± 6.4	
Education		
Basic primary	15	2.5
Secondary	78	13
Under graduate	30	5
Vocational/Technical	338	56.3
Graduate	65	10.8
Post graduate	74	12.3
Marital status		
Single	78	13.0
Married	457	76.2
Separated	24	4.0
Divorced	6	1.0
Widowed	13	2.2
Cohabiting	22	3.7
Religion		
Pentecostal	284	47.3
Protestant	87	14.5
Catholic	206	34.3
Islam	11	1.8
Traditionalist	8	1.3
Others	4	0.7

Table 2. Factors associated with unmet family planning needs

Variable	Unmet need		X ² (P-value)
	No n(%)	Yes n(%)	
Duration of status awareness			
≤ 4 years	210(62.1)	128(37.9)	9.983 (0.002)*
>4 years	129(49.2)	133(50.8)	
ART Duration			
≤ 4 years	227(61.7)	141(38.3)	10.410 (0.001)*
>4 years	112(48.3)	120(51.7)	
Always got medication			
Yes	329(56.3)	255(43.7)	0.241 (0.624)
No	10(62.5)	6(37.5)	
Revealed your status to others			
Yes	308(57.6)	227(42.4)	2.301 (0.129)
No	31(47.7)	34(52.3)	
Sexual orientation			
Heterosexual	355(56.6)	257(43.4)	0.139 (0.709)
Others	4(50.0)	4(50.0)	
No of Sexual partners			
One	291(63.3)	169(36.7)	36.665 (<0.001)*
More than one	48(34.3)	92(65.7)	

Variable	Unmet need		X ² (P-value)
	No n(%)	Yes n(%)	
Age group			
<40 years	282(62.0)	173(38.0)	22.988 (<0.001)*
≥40 years	57(39.3)	88(60.7)	
Education			
Secondary or below	270(58.6)	91(41.4)	3.464 (0.063)
Tertiary	69(49.6)	70(50.4)	
Sex			
Males	74(46.3)	86(53.8)	9.327 (0.002)*
Females	265(60.2)	175(39.8)	
Religion			
Pentecostal	179(63.0)	105(37.0)	17.243 (0.001)*
Protestant	33(37.9)	54(62.1)	
Catholic	114(55.3)	92(44.7)	
Others	13(56.5)	10(43.5)	

*Significant at p=0.05

Table 3. Predictors of unmet family planning needs

Variable	COR(95% C.I.)	P-value	AOR(95%C.I.)	P-value
Age group				
≥40 years	2.58(1.72-3.70)	<0.001*	2.15(1.43-3.23)	<0.001*
<40 years	Ref	Ref	Ref	Ref
Sex				
Males	1.76(1.22-2.53)	0.002*	1.26(0.84-1.88)	0.252
Females	Ref	Ref	Ref	Ref
Religion				
Pentecostal/Protestant	0.98(0.42-2.28)	0.953	1.21(0.49-2.97)	0.679
Catholic	1.05(0.44-2.50)	0.914	1.22(0.49-3.06)	0.671
Others	Ref	Ref	Ref	Ref
Duration of status awareness				
≤ 4 years	1.69(1.22-2.34)	0.002*	0.89(0.42-1.90)	0.768
>4 years	Ref	Ref	Ref	Ref
ART Duration				
>4 years	1.73(1.24-2.41)	0.001*	1.58(0.74-3.40)	0.237
≤ 4 years	Ref	Ref	Ref	Ref
Sexual partners				
One	3.30(2.22-4.91)	<0.001*	2.98(1.96-4.52)	<0.001*
More than one	Ref	Ref	Ref	Ref

*Significant at p=0.05

Ref: Baseline, or group for which a comparison is made with other categories in a variable

Table 4. Various reasons given by clients for not adopting any family planning method

Variable	Frequency n=261	Percent (%)
My partner and I need babies	48	18.4
I can't decide as a woman	47	18.0
Against my religion	42	16.1
Against my belief	38	14.6
My partner does not agree with it	26	9.9
I heard it makes women infertile	25	9.6
I do not know which one to use	20	7.7
I do not know where to get one	10	3.8
Other reasons	5	1.9

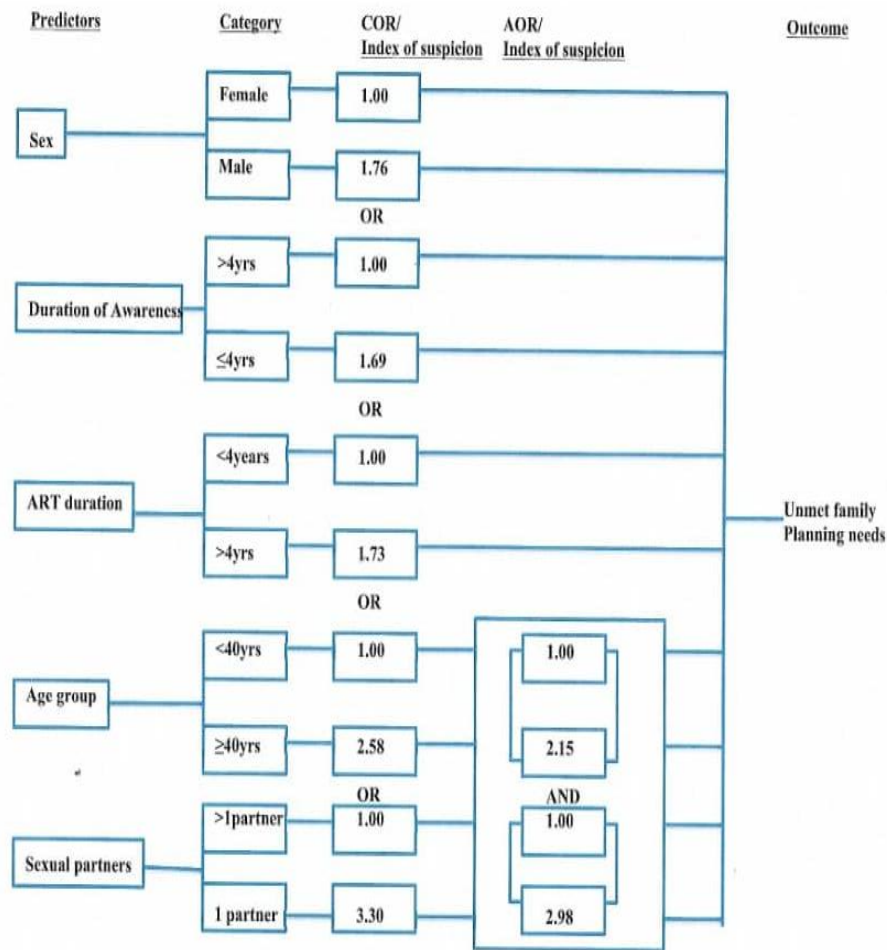


Fig. 3. Diagram showing an algorithm for estimating unmet family planning needs in PLWHA

The Binary logistic regression model in Fig. 3 showed that the factors sex, duration of awareness, ART duration, age group and sexual partners were statistically significant independent predictors of unmet family planning needs. The algorithm/matrix was developed to rate the likelihood/index of suspicion of unmet family planning needs based on the associated risk factors. The algorithm indicates that being a male or having ≤ 4 years duration of awareness or > 4yrs ART duration or aged ≥40yrs or with 1 partner were more specifically associated with unmet family planning needs than being a female or having > 4 years duration of awareness or < 4 years ART duration or aged <40 years and having >1partner. After correcting for confounding variables, unmet family planning need was more specifically associated with the combinations of an age group ≥ 40 years and having 1 partner, hence individuals who are aged ≥ 40 years with 1 partner showed an increased tendency towards having unmet family planning needs.

3.2 Discussion

The unmet need for contraception remains a global public health challenge, particularly among women of childbearing age in underdeveloped regions of the world including Nigeria [32]. Previous studies [33,21,34,35,36,20] assessing unmet family planning needs among PLWHA have mostly focused on women of reproductive age. However, this present study assessed the prevalence of unmet family planning needs in both HIV-positive women and men. This is because a woman's adoption of family planning depends on her male partner's ability to accept it and practice it. The prevalence of unmet family planning needs observed in the current study population was 43.5%. This is higher than the 16% unmet family planning need among HIV-positive women reported by Demissie et al. [37] in Oromia regional state, Ethiopia; 16.5% reported by Akoth et al. [38] in Kenya, as well as a pooled prevalence of 25.72% reported in a systematic review conducted using nine primary

studies with a total of 6,154 HIV-positive women in Ethiopia [39]. Though it is similar to reports of 45.1% and 49% unmet family planning needs among HIV-positive women in Uganda [40] and Cross-River state, Nigeria respectively [41]. However, the result was found to be less than the 51.6% reported by Oyebode et al. [42] in a study conducted in Jos, Nigeria.

This study observed that the factors associated with unmet family planning needs in the present study population were the duration of HIV status awareness, ART duration, number of sexual partners, age of the client, gender, and religious affiliation of the client. This agrees partly with the report of Feyissa and Melka [43] that age, educational status, desired children, family planning not being used previously, not receiving family planning on the day of interview at HIV/AIDS care, and not being on ART were factors associated with unmet family planning needs among women living with HIV in Ethiopia. Conversely, Demissie et al. [44] in their study reported factors associated with unmet family planning need to include discussions with healthcare providers, previous pregnancy, future fertility desire, and having sexual partners. The finding of this study also agrees partly with the report of Kassie et al. [19] that place of residence, age of the women, number of alive children, intention to have more children and ever-used contraceptives were the main factors associated with the unmet need for family planning.

All the studies above, identified age as a common factor associated with both met and unmet family planning need among PLWHA both in women only population as well as a population of men and women as applied in this current study. This shows that age is an important factor that cuts across gender and region regarding the family planning needs of PLWHA and also underscores age-related changes in family planning needs as previously discussed [45]. Regression analysis also showed that respondents who were 40 years or older were 2.15 times more likely to experience unmet family planning needs than those less than 40 years. This agrees with the findings in Kwale county, Kenya where the age group above 45 years had higher odds of unmet needs [46]. However, this is contrary to the findings in Ethiopia where the odds of unmet need for family planning were more than twice as high in the age group 15-34 years as opposed to their older counterparts Feyissa and Melka [43] and young

women aged 15-24 years were also found to be 3.12 times more likely to have an unmet need for family planning compared to those ≥ 35 years [39]. Hence, understanding the age-related dynamics of family planning needs among PLWHA could help strengthen family planning services to close the gaps in unmet family planning needs among PLWHA.

In addition, the number of sexual partners was also associated with unmet family planning needs. The regression analysis showed that respondents who had one sexual partner were 2.98 times more likely to experience unmet family planning needs when compared to respondents who had multiple sexual partners. This is contrary to the report of Demissie et al. [44] that having multiple sexual partners (AOR=5.26, 95% CI 1.79–15.5) as compared with one sexual partner (AOR=7.24, 95% CI 1.82–28.74) was a predictor for unmet needs for family planning among PLWHA in Oromia regional state, Ethiopia. By implication, PLWHA who had multiple sexual partners demonstrated higher odds of unmet family planning needs. The difference observed may be due to the studied population as Demissie et al. [44] recruited only women living with HIV/AIDS for their study. This suggests that the inclusion of men living with HIV/AIDS in studies of family planning needs among PLWHA may impact the trend of predictors of unmet family planning needs, which could also indicate the distinctiveness of family planning needs among men living with HIV/AIDS.

This study also found a significant association between unmet family planning needs and duration of HIV awareness as well as ART duration. These associations may be linked with improvements in the physiological status of PLWHA following continued use of antiretroviral therapy with the characteristic renewal of sexual and reproductive desires. In other words, those who had been on ART for longer than four years tended to have unmet family planning needs. The finding of any association between unmet family planning needs and ART duration agrees with Feyissa and Melka [43] that having unmet family planning needs was higher in women who did not start ART compared to those on ART. This study also found a significant association between religion and unmet family planning need among PLWHA, which supports the report of Wanyenze and Lule [40] that other Christian denominations (Pentecostals and Seventh Day Adventists) demonstrated higher unmet family planning needs compared to Catholics. It must

be pointed out here that the study was conducted in a predominantly Christian area, which may have accounted for the low percentage (1.8%) of respondents of the Islamic faith, which was not significant during the analysis. However, in a study titled, "Fertility desire concordance and contraceptive use among couples living with HIV in Northern Nigeria", conducted by Iliyasu et al. [47] in Kano state, Nigeria which is a predominantly Muslim area, it was shown that the Muslim respondents were in the majority (86.3%). Religion and religious affiliations are known determinants of the belief system of different groups and could influence the social perception and behaviours of individuals, including contraceptive use and unmet need for family planning. This is also reflected in Table 4, as 16.1% of the respondents admitted to not using any family planning methods because of their religion. The various reasons reported in the Table 4, are in line with the findings of [48-51].

4. CONCLUSION

There is a high prevalence of unmet family planning needs among PLWHA in Bayelsa state, South-South region of Nigeria. Unmet family planning needs were associated with disease-related factors; duration of status awareness and ART duration, as well as sociodemographic factors; age, gender, religion and the number of sexual partners. There is a need to explore the possibilities of closing gaps in family planning needs among PLWHA by addressing the identified factors.

CONSENT

All participants who indicated an interest in being a part of the study gave signed informed consent before being recruited into the study.

ETHICAL CONSIDERATION

Ethical approval was obtained from the Ministry of Health, Yenagoa, Bayelsa State with the approval number BSHREC/Vol.1/21/10-A as well as from FMC, Yenagoa with number FMCY/REC/ECC/2021/JUNE/365. The copies of the questionnaire used for data collection were de-identified by using randomly assigned research identifiers to ensure the privacy and confidentiality of information given by the study participants.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. World Health Organization (WHO). HIV; 2022. Available:<https://www.who.int/news-room/fact-sheets/detail/hiv-aids>
2. Joint United Nations Programme on HIV/AIDS. xGlobal HIV & AIDS Statistics — 2022 Fact Sheet; 2022. Available:<https://www.unaids.org/en/resources/fact-sheet>.
3. Statista Research Department. People living with HIV in Nigeria in 2021; 2023. Retrieved 22 February. Available:<https://www.statista.com/statistics/1128675/people-living-with-hiv-receiving-treatment-in-nigeria/>
4. UNAIDS. The gap report: children and pregnant women living with HIV. In: UNAIDS Geneva; 2014.
5. UNICEF. A child was infected with HIV every two minutes in 2020; 2021. DOI:<https://doi.org/https://www.unicef.org/nigeria/press-releases/child-was-infected-hiv-every-two-minutes-2020-unicef>
6. Wemakor A, Garti H, Saeed N, Asumadu O, Anyoka B. Prevalence and determinants of unmet need for contraception in North Gonja district, Ghana. *BMC Women's Health*. 2020;20(1):1-9.
7. Cuinhane CE, Roelens K, Vanroelen C, Quive S, Coene G. Perceptions and decision-making about pregnancy among HIV positive women in rural Maputo Province, Mozambique—a qualitative study. *BMC Women's Health*. 2018;18(1):1-21.
8. Machiyama K, Casterline JB, Mumah JN, Huda FA, Obare F, Odwe G, Kabiru CW, Yeasmin S, Cleland J. Reasons for unmet need for family planning, with attention to the measurement of fertility preferences: protocol for a multi-site cohort study. *Reproductive Health*. 2017;14(1):23.
9. Amuzie, CI, Nwamoh UN, Ukegbu A, Umeokonkwo CD, Azuogu BN, Agbo UO, Balogun S. Determinants of male involvement in family planning services in Abia State, Southeast Nigeria. *Contraception and Reproductive Medicine*. 2022;7(1):1-9

10. Vouking MZ, Evina CD, Tadenfok CN. Male involvement in family planning decision-making in sub-Saharan Africa-what the evidence suggests. *Pan African Medical Journal*. 2014;19(1).
11. Yargawa J, Leonardi-Bee J. Male involvement and maternal health outcomes:systematic review and meta-analysis. *J Epidemiol Community Health*. 2015;69(6):604-612.
12. Kriel Y, Milford C, Cordero J, Suleman F, Beksinska M, Steyn P, Smit JA. Male partner influence on family planning and contraceptive use:perspectives from community members and healthcare providers in KwaZulu-Natal, South Africa. *Reproductive Health*. 2019;16(1):1-15.
13. Cleland J, Harbison S, Shah IH. Unmet need for contraception:issues and challenges. *Studies in Family Planning*. 2014;45(2):105-122.
14. Pearson E, Becker S. Couples' unmet need for family planning in three West African countries. *Studies in Family Planning*. 2014;45(3):339-359.
15. Habte D, Namasasu J. Family planning use among women living with HIV:knowing HIV positive status helps results from a national survey. *Reproductive Health*. 2015;12(1):41.
16. Laryea DO, Amoako YA, Spangenberg K, Frimpong E, Kyei-Ansong J. Contraceptive use and unmet need for family planning among HIV positive women on antiretroviral therapy in Kumasi, Ghana. *BMC Women's Health*. 2014;14(1):126.
17. Wekesa E, Coast E. Contraceptive need and use among individuals with HIV/AIDS living in the slums of Nairobi, Kenya. *International Journal of Gynecology & Obstetrics*. 2015;130:E31-E36.
18. Dejene H, Abera M, Tadele A. Unmet need for family planning and associated factors among married women attending anti-retroviral treatment clinics in Dire Dawa City, Eastern Ethiopia. *PLoS One*. 2021;16(4):e0250297. Available:<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8051792/pdf/pone.0250297.pdf>
19. Kassie MD, Habitu YA, Berassa SH. Unmet need for family planning and associated factors among women living with HIV in Gondar city, Northwest Ethiopia:a cross-sectional study. *The Pan African Medical Journal*. 2021;38.
20. Derek A, Seme A, Anye CS, Nkfusai CN, Cumber SN. Modern family planning use among people living with HIV/AIDS:a facility based study in Ethiopia. *The Pan African Medical Journal*. 2019;33.
21. Abubeker FA, Fanta MB, Dalton K. Unmet need for contraception among HIV-positive women attending HIV care and treatment service at saint Paul's hospital millennium medical college, Addis Ababa, Ethiopia. *International Journal of Reproductive Medicine*; 2019.
22. Sinai I, Omoluabi E, Jimoh A, Jurczynska K. Unmet need for family planning and barriers to contraceptive use in Kaduna, Nigeria: culture, myths and perceptions. *Journal of Culture, Health Sexuality*. 2019;1-16.
23. Population Reference Bureau. World population sheet; 2019. Retrieved 19th December 2020. Available:<https://www.prb.org/worldpopdata/>
24. Statista Research Department. Prevalence rate of any contraceptive method among women in Nigeria as of 2022, by civil status; 2022. Retrieved 21st February 2023. Available:<https://www.statista.com/statistics/1268145/contraceptive-prevalence-rate-among-women-in-nigeria/#:~:text=In%202022%2C%20the%20contraception%20prevalence,15%20to%2049%20were%20considered>
25. National Bureau of Statistics. Demographic Statistics Bulletin; 2017. Available:<https://nigerianstat.gov.ng/download/775>
26. Abikoye GE. Factors affecting the management of substance use disorders: Evidence from selected service users in Bayelsa state. *African Journal of Drug and Alcohol Studies*. 2015; 14(2):115-123.
27. Raimi M, Funmilayo AA, Major I, Okoyen E, Bilewu OO. Public health impact of substance use on adolescents: A snapshot of Yenagoa in Bayelsa State, Nigeria. *American Journal of Biomedical Science & Research*; 2019.
28. Cochran WG. *Sampling Techniques* (2nd Ed ed.). John Wiley and Sons, Inc.; 1963.
29. Sharma A. Sample size calculation for research studies in Ophthalmology. *Curr Indian Eye Res*. 2014;1:78-81.
30. United Nations. *Fertility and Family Survey (FFS)*; 1993.

- Available:https://unece.org/DAM/pau/_docs/ffs/FFS_2000_Prog_QuestModel.pdf
31. Wondim G, Degu G, Teka Y, Diress G. Male involvement in family planning utilization and associated factors in Womberma District, Northern Ethiopia:community-based cross-sectional study. *Open Access Journal of Contraception*. 2020;197-207.
 32. Girma Garo M, Garoma Abe S, Dugasa Girsha W, Daka DW. Unmet need for family planning and associated factors among currently married women of reproductive age in Bishoftu town, Eastern Ethiopia. *PLoS One*. 2021;16(12):e0260972.
 33. Abeje G, Motbaynor A. Demand for family planning among HIV positive women on ART:the case of South Gondar and North Wollo Zones Amhara region. *BMC Research Notes*. 2016; 9(1):43.
 34. Alene KA, Atalell KA. Contraceptive use and method preference among HIV-positive women in Amhara region, Ethiopia. *BMC Women's Health*. 2018;18(1):97.
 35. Aradom HS, Sendo EG, Teshome GS, Dinegde NG, Demie TG. Factors associated with modern family planning use among women living with HIV who attended care and treatment clinics in Jijiga town, Eastern Ethiopia. *Therapeutic Advances in Reproductive Health*. 2020; 14:2633494120976961.
Available:https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7739204/pdf/10.1177_2633494120976961.pdf
 36. Araya BM, Solomon AA, Gebreslasie KZ, Gudayu TW, Anteneh KT. The role of counselling on modern contraceptive utilization among HIV positive women:the case of Northwest Ethiopia. *BMC Women's Health*. 2018;18(1):121.
Available:https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6033227/pdf/12905_2018_Article_603.pdf
 37. Demissie K, Shifera Asfaw LA, Kiros G. Sexual behaviours and associated factors among antiretroviral treatment attendees in Ethiopia. *HIV/AIDS (Auckland, NZ)*. 2015;7:183.
 38. Akoth C, Oguta JO, Kyololo OBM, Nyamu M, Ndirangu MNU, Gatimu SM. Factors associated with the utilisation and unmet need for modern contraceptives among urban women in Kenya: A cross-sectional study. *Frontiers in Global Women's Health*. 2021;2:669760.
 39. Mekie M, Addisu D, Taklual W, Melkie A. The level of unmet need for family planning and its predictors among HIV-positive women in Ethiopia: A systematic review and meta-analysis. *BioMed Research International*; 2021.
 40. Wanyenze KMSRK, Lule H. Determinants of family planning service uptake and use of contraceptives among postpartum women in rural Uganda; 2015.
 41. Okigbo CC, McCarraher DR, Chen M, Gwarzo U, Vance G, Chabikuli O. Unmet need for contraception among clients of FP/HIV integrated services in Nigeria:the role of partner opposition. *African Journal of Reproductive Health*. 2014;18(2):134-143.
 42. Oyebode T, Sagay A, Musa J, Ekwempu C, Agaba P, Idoko J, Okonkwo P, Kanki P. Unmet need for contraception among human immunodeficiency virus-positive women in Jos, Nigeria:a call to integrate family planning and human immunodeficiency virus services. *Journal of HIV and Human Reproduction*. 2016;4(1):13.
 43. Feyissa TR, Melka AS. Demand for modern family planning among married women living with HIV in western Ethiopia. *PLoS One*. 2014;9(11).
 44. Demissie DB, Bulto GA, Mmusi-Phetoe R. Unmet need for family planning and factors associated among women living with HIV in Oromia regional state, Ethiopia. *Reproductive Health*. 2021;18(1):1-9.
 45. Ama NO, Olaomi JO. Relationship between socio-economic characteristics of older adults' women and family planning use in Botswana. *SAHARA-J:Journal of Social Aspects of HIV/AIDS*. 2021;18(1):33-41.
 46. Mumbo EM, Mutisya R, Ondigi A. Unmet need for contraception use among hiv positive women in Kwale County, Kenya. *African Journal of Health Sciences*. 2021;34(6):767-778.
 47. Iliyasu Z, Galadanci HS, Zubair KA, Abdullahi HM, Jalo RI, Aliyu MH. Fertility desire concordance and contraceptive use among couples living with HIV in northern Nigeria. *The European Journal of Contraception & Reproductive Health Care*. 2020;25(5):372-380.
 48. Emeh AN, Hermann N, Tanue EA, Dickson NS. Sexual and reproductive health of

- CDC plantation camp residents: a focus on unmet need for family planning among women in union. *BMC Public Health*. 2023;23(1):193.
49. Moreira LR, Ewerling F, Barros AJ, Silveira MF. Reasons for nonuse of contraceptive methods by women with demand for contraception not satisfied: an assessment of low and middle-income countries using demographic and health surveys. *Reproductive Health*. 2019;16:1-15.
50. Uthman MK, Bello IS, Fadugbagbe AO, Olajubu TO, Ismail WO, Ibrahim AO. Unmet needs for family planning and its determinants among women of reproductive age in Ilesha Southwest Nigeria: A cross-sectional study. *The Journal of Medicine Access*. 2022;6:27550834221115979.
51. Ngom P. Men's unmet need for family planning: implications for African fertility transitions. *Studies in Family Planning*. 1997;192-202.

© 2023 Ofurum et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<https://www.sdiarticle5.com/review-history/96800>