ORIGINAL RESEARCH ARTICLE

Contraceptive use, menstrual resumption, and experience of pregnancy and birth among girls and young women in an internally displaced persons camp in Northeastern Nigeria

DOI: 10.29063/ajrh2022/v26i12s.15

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Abstract

In Northeastern Nigeria 600,000 internally displaced girls and women need sexual and reproductive health and rights (SRHR) services. We examined the relationships between contraceptive use, menstrual resumption, and pregnancy and birth experiences among girls (ages 15-19) and young women (ages 20-24) in an IDP camp. Data are from a cross-sectional survey collected using three-stage cluster sampling; the analytic sample is 480. Data were analyzed in Stata 14 using logistic regression models. Sixty-three percent of respondents had ever had sex and over half were currently sexually active. Current contraceptive use was 8% and 47% had ever been pregnant. Older respondents and those who had ever had sex were more likely to have heard of a contraceptive method and current use was higher for women with 5 or more births. These findings indicate a need for better contraceptive education for girls before sexual activity and promotion of contraception that accounts for fertility preferences in this setting. *(Afr J Reprod Health 2022; 26[12s]: 138-145).*

Keywords: Nigeria, internally displaced persons, contraception, pregnancy, birth

Résumé

Dans le nord-est du Nigéria, 600 000 filles et femmes déplacées à l'intérieur du pays ont besoin de services de santé et de droits sexuels et reproductifs (SDSR). Nous avons examiné les relations entre l'utilisation de contraceptifs, la reprise menstruelle et les expériences de grossesse et d'accouchement chez les filles (âgées de 15 à 19 ans) et les jeunes femmes (âgées de 20 à 24 ans) dans un camp de personnes déplacées. Les données proviennent d'une enquête transversale collectée à l'aide d'un échantillonnage en grappes à trois degrés ; l'échantillon analytique est de 480. Les données ont été analysées dans Stata 14 à l'aide de modèles de régression logistique. Soixante-trois pour cent des répondants avaient déjà eu des relations sexuelles et plus de la moitié étaient actuellement sexuellement actifs. L'utilisation actuelle de contraceptifs était de 8% et 47% avaient déjà été enceintes. Les répondants plus âgés et ceux qui avaient déjà eu des rapports sexuels étaient plus susceptibles d'avoir entendu parler d'une méthode contraceptive et l'utilisation actuelle était plus élevée pour les femmes ayant 5 naissances ou plus. Ces résultats indiquent la nécessité d'une meilleure éducation à la contraception pour les filles avant l'activité sexuelle et la promotion de la contraception qui tient compte des préférences de fécondité dans ce contexte. *(Afr J Reprod Health 2022; 26[12s]: 138-145).*

Mots-clés: Nigeria, personnes déplacées internes, contraception, grossesse, naissance

Introduction

Nigerian adolescent girls and young women in humanitarian settings experience sexual and reproductive health and rights (SRHR) vulnerabilities including child marriage, early sexual debut, unintended pregnancies, sexually transmitted infections (STIs), unsafe abortion, maternal morbidity and mortality, and Gender Based Violence (GBV)[1]. These vulnerabilities are exacerbated by conflicts whereby young Nigerians are displaced from their homes into Internally Displaced Persons (IDP) camps. Over 2.1 million people in Northeastern Nigeria have been displaced by the Boko Haram insurgency, and 2.3 million girls and 1.6 million women need humanitarian assistance in Northeastern Nigeria[2,3]. Borno state is home to the largest population of IDPs in Northeast Nigeria with an estimated 1.5 million internally displaced persons who live in camplike settings. Of those displaced persons, an estimated 600,000 women and girls of reproductive age are in need of sexual and

reproductive health services, including contraception and safe abortion[4,5].

The need for sexual and reproductive health services for girls and young women in humanitarian settings in Nigeria is especially acute given early sexual initiation and exposure to sexual violence, which can lead to mistimed or unwanted pregnancies, increased maternal morbidity and mortality, and exposure to sexually transmitted infections that can affect future fertility. Two recent studies indicate early sexual debut among unmarried Nigerian youth, with girls initiating sex earlier than boys on average (age 17 for girls and 18 for boys on average)[1,6]. In the humanitarian context, sexual initiation is also predicated by child marriage, gender-based violence, and sex in exchange for basic needs[7-10]. In Borno State, the Boko Haram insurgents have used sexual violence as a method of terror and utilized rape against girls and women[11]. Early sexual initiation by force or by choice exposes girls and young women to pregnancies and STIs. In Nigeria, nearly one-fifth of adolescents have begun childbearing, and in Borno state, this figure is 13.5%[12]. Adolescent childbearing is associated with higher risks for maternal morbidity and mortality compared with adult mothers[13,14]. Further, female adolescents may be more at risk for STIs, which when left untreated, can lead to fertility complications in a society where fertility is highly valued[12,15].

Although many Nigerian adolescent girls and young women are sexually active before age twenty and before marriage, contraceptive use among adolescents remains low. The most recent Demographic and Health Survey (DHS) in Borno State indicates low contraceptive use at 6.2% of married and sexually active women of reproductive age and an unmet need for contraception of 12.2% for 15-19-year olds and 16.1% for 20-24-year olds[12]. The total fertility rate in Borno state is 5.2, yet the wanted fertility rate is 4.7, indicating a gap between desired and actual fertility[12]. In instances where young sexually active girls and women become pregnant when they do not desire, many turn to abortion, even though it is illegal in Nigeria except to save the mother's life[16]. In Northeast Nigeria, it is estimated that 16% of pregnancies end in abortion, often under unsafe conditions, thus leading to increased morbidity and mortality[16,17]. Sexual and reproductive health services are available in humanitarian settings in Nigeria and national health policies endorse free, adolescent friendly contraceptive services. Despite these initiatives, girls and young women still face many barriers when seeking SRHR services in IDP camps. Prior research in humanitarian settings indicates girls and young women fear shame, embarrassment, and social rejection and thus avoid SRHR services[18,19]. As part of a larger study to understand the SRHR challenges and needs of girls and young women in humanitarian settings, we examined the relationships between contraceptive use, doing something to resume menstruation, and pregnancy and birth experiences among married and unmarried girls and young women. Our research questions for this study are: What are the relationships between contraceptive knowledge and sexual experience among adolescents and young women in an IDP camp? What is the relationship between girls and young women's prior experiences of pregnancy and birth and current contraceptive use in an IDP camp? What is the relationship between girls and young women's prior experiences of pregnancy and doing something to resume menstruation in an IDP camp?

Methods

Research setting: Muna Garage El Badawe internally displaced persons' camp

Muna Garage El Badawe IDP camp in Maiduguri, consists of 10,000 households and a population slightly more than 50,000, of which one fifth are children and adolescents. The camp accommodates about 50,000 IDPs from more than ten thousand households. It is organized into six subdivisions called zones A-F. The zones are communities within the camp, of people from geographically contiguous and culturally similar towns and villages. The majority of the IDPs are from rural parts of Borno State who fled the Boko Haram conflict that has resulted in large scale disruptions in the state and neighboring states within Northeast Nigeria.

The available SRHR services in the camp include two health facilities (UNFPA and UNICEF), GBV services provided by Grassroots Initiative for Strengthening Community Resilience (GISCOR), UNFPA, and Danish Refugee Council (DRC), and two safe spaces (UNFPA and UNHCR). Other providers in the camp include Nigeria National

Emergency Management Agency (NEMA; food distribution), Borno State Emergency Management Agency (SEMA: camp administration), IOM (camp coordination and management), GISCOR (protection and referral services), DRC (protection and livelihood), Centre for Integrated Development and Research (CIDAR) (water and sanitation), UNFPA (protection, health, and skills acquisition), and UNICEF (health). There are 12 water points in the camp and 285 latrines. Tribes represented in the camp include Hausa, Gamargu, Kanuri, Fulani Shuwa and Wula-Wula.

Survey

We conducted a cross-sectional survey in August 2021 in Muna Garage El Badawe IDP camp. The analytic sample is 480 girls and young women of reproductive age (15-24 years old). Criteria for inclusion were written assent or consent and parental/guardian consent where needed, age, marital status (single or married), and current resident of the IDP camp. Three-stage cluster sampling was used. Camp zones A-F were treated as clusters and non-proportional stratification was used to allocate equal samples to each zone (80 per zone). The second stage was the enumeration of households in each cluster and the selection of every nth household (where n is the sampling interval obtained by dividing the enumerated households by the sample size of 80 per cluster). The third stage was the random selection of one participant from each selected household among all eligible young women and girls.

The questionnaire had five sections: demographics, basic living conditions in the camp, contraception, pregnancy and abortion, sexual and reproductive health service use, and gender-based violence. The questionnaire was translated from English to Hausa and back translated to ensure consistency. The mean time for the administration of the survey was 43 minutes. Interviews were conducted in Hausa and in a few cases, in Kanuri. Interviews were conducted by a trained female interviewer using a structured questionnaire deployed through the Kobo Toolbox platform. The participants did not receive remuneration, but hygiene kits containing soap and sanitary pads were given to participants at the end of interviews as incentives.

Data analysis

Data were analyzed in Stata 14[20]. The main outcome variables were contraceptive knowledge, current contraceptive use, and whether the participant had done something to resume their menstruation in the last three years. The main predictors were whether the participant had ever had sex and their pregnancy and birth experiences. Descriptive statistics for demographic and key variables were calculated and logistic regression models used to examine the relationships of interest. All regression models were adjusted for age, marital status, schooling, and number of years the participant lived in the camp (Table 2).

Results

Most respondents were ages 15-19 (58%) and were single (48%). Among 15–19-year-olds, 68% were single and 32% were married, whereas 19% of 20-24-year olds were single and 81% were married. A majority of respondents had no formal education (59%), were Nigerian (98.5%), and were Muslim (99.6%). The predominant languages spoken were Hausa (91%) followed by Kanuri (66%), with many respondents speaking more than one language. Many respondents lived in the camp for three or more years (3-5 years-58% and 6-8 years-31%) (Table 1).

One third of respondents had heard of a contraceptive method, but only 22% of 15–19-year-olds had heard of one compared to 50% of 20-24-year olds. Married girls/women were more likely to have heard of a contraceptive method (41%) compared to single ones (24%). Sixty three percent of respondents had ever had sex with 26% initiating sex before the age of 15, 35% between ages 15-19, and 3% between ages 20-24. Over half (56%) were currently sexually active, yet only 8% were using a contraceptive method (1% of single sexually active women and 7% of sexually active married or partnered women (Table 1).

Forty seven percent of respondents had ever been pregnant, mostly among married or partnered participants; most once (37%) or twice (33%). Respondents had given birth to one (42%) or two (35%) children. One third of respondents experienced a delay in menstruation in the three years prior to the survey and 5% (n=26) had done

Table 1: Sample Characteristics (N=480)

Variable	Frequency (%)
Age	
15-19	279 (58%)
20-24	201 (42%)
Marital Status	
Single	230 (48%)
Married/Partnered	224 (47%)
Divorced/Separated/Widowed	26 (5%)
Education	
No Formal Schooling	284 (59%)
Formal or Islamic Schooling	196 (41%)
Religion	
Muslim	478 (99.6%)
Christian	1 (0.2%)
No Religion	1 (0.2%)
Country of Origin	
Nigeria	473 (98.5%)
Cameroon	4 (0.83%)
Chad	1 (0.21%)
Niger	1 (0.21%)
France	1 (0.21%)
Length of Stay in the Camp	
0-2 years	55 (11%)
3-5 years	276 (58%)
6-8 years	149 (31%)
Languages Spoken*	
Hausa	435 (91%)
Kanuri	318 (66%)
Gamargu	177 (37%)
Shuwa	55 (11%)
Others	21 (4%)
*More than one option	
Ever Heard of a Contraceptive Method	
Yes	165 (34%)
Ever Had Sex	
Yes	304 (63%)
Age at First Sex	
Younger than 15	127 (26%)
15-19	167 (35%)
20-24	16 (3%)
Currently Sexually Active	
Yes	271 (56%)
Current Contraceptive Use Among Sexually Active	
Yes	23 (8%)
Ever Been Pregnant	
Yes	224 (47%)
Number of Pregnancies Among Those Who Have Ever Been Pregnant (N=224)	
1	82 (37%)
2	75 (33%)
3	36 (16%)
4	19 (8%)
5+	12 (5%)
Number of Live Births Among Those Who Have Given Birth (N=203)	
1	86 (42%)
2	71 (35%)
3	25 (12%)
4	14 (7%)
5+	7 (3%)
Menstruation Delayed in the Last 3 years	
Yes	148 (31%)
Did Something to Resume Menstruation	
Yes	26 (5%)

something to resume it. Of the 26 women who had done something to resume their menstruation, most went to the hospital (n=10), took herbs (n=6), traditional medicines (n=3), drugs (n=5), went to the pharmacist (n=1), or spoke with a friend (n=1).

The odds of ever having heard of a contraceptive method for respondents who had ever had sex were four times the odds (OR: 4.19; 95% CI: 2.07-8.46) for respondents who had never had sex. The odds of ever having heard of a contraceptive method for respondents ages 20-24 were two times (OR: 2.17; 95% CI: 1.34-3.51) the odds for respondents ages 15-19. The odds of having heard of a contraceptive method were 2.92 (95% CI: 1.12-7.59) the odds for women who had three births compared to women who had one. The odds of current contraceptive use for respondents who had five or more pregnancies were 6.10 (95% CI: 1.08-34.35) times the odds for respondents who had one. The odds of current contraceptive use for respondents who had five or more births were 5.56 (95% CI: 0.82-37.60) times the odds for respondents who had one. The odds of doing something to resume menstruation for respondents who had five or more births were 7.00 (95% CI: 0,87-56.21) times the odds for respondents who had one (Table 2).

Table 2: Results from logistic regression models

	Model 1 **Ever heard of a contraceptive method and ever had sex** **(n=480)** **Odds Ratio (Confidence Interval)**	**Model 2** **Current contraceptive use and pregnancies** **(n=271)**	**Model 3** **Current contraceptive use and births** **(n=271)**	**Model 4** **Did something to resume menstruation and births** **(n=148)**
Ever had sex	4.19* (2.07-8.46)			
One birth	referent		referent	referent
Two births	1.25 (0.67-2.34)		1.66 (0.51-5.42)	0.84 (0.15-4.62)
Three births	2.92* (1.12-7.59)		1.48 (0.26-8.32)	0.49 (0.04-6.00)
Four births	2.24 (0.68-7.36)		2.45 (0.42-14.17)	3.38 (0.21-54.02)
Five or more births	1.63 (0.24-7.96)		5.56* (0.82-37.60)	7.00** (0.87-56.22)
One pregnancy		Referent		
Two pregnancies		1.09 (0.27-4.44)		
Three pregnancies		2.63 (0.61-11.45)		
Four pregnancies		3.56 (0.70-18.11)		
Five or more pregnancies		6.10* (1.08-34.35)		
Age 15-19	referent	Referent	referent	referent
Age 20-24	2.17* (1.34-3.51)	1.50 (0.49-4.57)	1.73 (0.59-5.15)	1.25 (0.42-3.75)
Single	referent	Referent	referent	referent
Married or Partnered	0.50* (0.25-0.99)	0.42 (0.10-1.74)	0.45 (0.12-1.74)	0.56 (0.16-2.05)
Divorced	1.29 (0.42-3.90)	0.26 (0.02-3.64)	0.36 (0.28-4.69)	0.78 (0.08-7.33)
No formal schooling	referent	Referent	referent	referent
Formal or Islamic schooling	1.38 (0.88-2.19)	1.49 (0.55-4.03)	1.32 (0.50-3.48)	1.30 (0.50-3.41)
0-2 years in the camp	0.19 (0.46-1.81)	1.09 (0.27-4.30)	1.17 (0.29-4.62)	0.63 (0.11-3.57)
3-5 years in the camp	referent	Referent	referent	referent
6-8 years in the camp	0.19 (0.57-1.43)	0.66 (0.23-1.87)	0.70 (0.25-1.96)	0.33 (0.10-1.09)

*Statistically significant p=0.05 **Statistically significant at p=0.10

Discussion

Few respondents in our study knew of a contraceptive method, even though over half were currently sexually active and most became sexually active before age twenty. In our prior research with the same population, early sexual initiation was due to lack of food and poverty leading to sex in exchange for food or money and early/forced marriages[8]. In our current survey, younger unmarried women were less likely to have heard of a contraceptive method. Prior research in Nigeria also demonstrates that young, unmarried women are less likely know about contraceptives and that their use before marriage is not deemed socially appropriate[21,22], and in our qualitative interviews, unmarried girls cited taboos of sexual activity outside of marriage as reason for not accessing services[8]. Yet, respondents who had ever had sex were more likely to have heard of a contraceptive method compared to those who had not, signaling that upon sexual initiation, they learn about

contraceptives either in anticipation of sexual activity or as a result of it. Respondents in their twenties (most of whom are married) and those who had more births were more likely to have heard of a contraceptive method, although overall knowledge was still low compared to all Nigerian women[12]. Indeed, in our qualitative interviews with married women, they reported accessing available contraceptive services in the camp for child spacing[8]. These findings indicate a need for better contraceptive education overall and a particular need to educate girls younger than 15 before they become sexually active and get married. In the camp, reaching vulnerable, sexually active girls with contraceptive information and services is paramount to preventing poor SRH outcomes such as unwanted pregnancies, STIs and unsafe abortion.

Current contraceptive use among sexually active respondents was low, signaling a need for better contraceptive access, while also considering fertility preferences. For married women, this may indicate a desire for additional children, as the wanted fertility rate is close to five; thus, married women may not use contraceptive methods until reaching their desired family size, even though they could consider contraceptive use for spacing. Married women in our qualitative research reported using camp contraceptive services for spacing. Indeed, contraceptive use for spacing improves maternal health by allowing women time to rest and recover between births and the World Health Organization recommends birth intervals of 2-3 years[23,24]. In Nigeria, fertility preferences are higher in the Northeast and among Muslims and promoting contraceptives for spacing and for the health of the mother may be more acceptable[25]. We found that current contraceptive use was greater for women who had had five or more births, signifying that when women reach their desired family size of five or more, they are apt to adopt a contraceptive method for limiting. These findings reflect the importance of pregnancy and birth history when promoting contraceptives, as well as fertility preferences at different ages and stages of life (whether married, wanting to space or wanting to limit).

Although no respondents reported an induced abortion, twenty-six had done something to resume their period, and respondents who had five or more births were much more likely to have done this. Methods used to resume one's period included traditional herbs, traditional medicine, or drugs. In Nigeria, it is estimated that 11% of pregnancies are unintended (whether mistimed or unwanted) and that over half of unintended pregnancies end in abortion[17,26]. Due to the illegality of abortion and high levels of abortion stigma[27,28], induced abortions were likely highly underreported in our study. In our qualitative interviews, unmarried girls reported that induced abortion was common, practiced outside of the camp, and kept secret due to the social stigma associated with it[8]. However, girls and young women did report in the survey doing something to resume their menstruation, ostensibly without knowing whether they were pregnant. This practice is menstrual regulation and the concept is documented in Nigeria and other countries[9,29]. Promoting the practice of menstrual regulation instead of abortion may be more socially acceptable in Nigeria. Further research is need in this setting to understand the safety and efficacy of menstrual resumption as currently practiced, the acceptability of menstrual regulation, and the potential of promoting safe methods for menstrual resumption.

Ethical considerations

The research methods were approved by the National Health Research Ethics Committee of Nigeria's Federal Ministry of Health. Girls and young women were asked if they were willing to participate in the interview. Young women 18 and older gave written consent to the interviewer after the interviewer read the IRB approved consent form. For participants younger than 18, their parent or legal guardian provided written consent after reviewing the form with the interviewer, and once parental/guardian consent was obtained, the interviewer reviewed the assent form with the participant and the participant provided written assent. After providing assent or consent and obtaining parental/guardian consent where necessary, interviews were arranged in a private location with visual and audio privacy.

Conclusion

Our findings indicate that contraceptive services have yet to reach many girls and young women in this Internally Displaced Persons (IDP) camp despite early sexual initiation and high levels of sexual activity. Our research contributes to the

understanding of girls' and young women's experiences with contraception, pregnancy, birth, and menstrual resumption in humanitarian settings. IDP camps are a unique setting in Nigeria where girls and young women reside for years, often during relationship formation, sexual initiation, marriage, and childbirth. By equipping these girls and young women with sexual and reproductive health knowledge, services, and ongoing support, they can meet their reproductive desires and needs as they form their families during this critical time.

References

1. Adedini SA, Mobolaji JW, Alabi M and Fatusi AO, Changes in contraceptive and sexual behaviours among unmarried young people in Nigeria: Evidence from nationally representative surveys. PloS one, 2021. 16(2): p. e0246309.
2. UNHCR, 2019 Annual report. Sexual and gender-based violence Northeast Nigeria. UNHCR's contribution to prevention, risk mitigation and multi-sectoral response. Internally displaced persons and returnees in Borno, Yobe, Adamawa states Northeast Nigeria. . 2020, UNHCR: Maiduguri.
3. UNHCR. Nigeria emergency. 2021 [cited 2021 September 10]; Available from: https://www.unhcr.org/en-us/nigeria-emergency.html.
4. IOM, Displacement tracking matrix (DTM) Northeast Nigeria. . 2020, IOM Nigeria.
5. OCHA, 2019 humanitarian needs overview. 2019, OCHA: New York.
6. Amo-Adjei, J. and D.A. Tuoyire, Timing of sexual debut among unmarried youths aged 15–24 years in sub-Saharan Africa. Journal of biosocial science, 2018. 50(2): p. 161-177.
7. Iyakaremye I and Mukagatare C. Forced migration and sexual abuse: experience of Congolese adolescent girls in Kigeme refugee camp, Rwanda. Health Psychol. Rep, 2016. 4: p. 261-271.
8. Marlow HM, Kunnuji M, Esiet A, Bukoye F and Izugbara C. The Sexual and Reproductive Health Context of an Internally Displaced Persons' Camp in Northeastern Nigeria: Narratives of Girls and Young Women. Front. Reprod. Health, 2022. 3: p. 779059.
9. Singh S, Hossain A, Maddow-Zimet I, Vlassoff M, Bhuiyan HU and Ingerick M. The incidence of menstrual regulation procedures and abortion in Bangladesh, 2014. International perspectives on sexual and reproductive health, 2017. 43(1): p. 1-11.
10. UNFPA, Adolescent girls in disaster and conflict: Interventions for improving access to sexual and reproductive health services. UNFPA, Editor. 2016, UNFPA: New York.
11. Adegbite FR. Rethinking abortion laws in Nigeria: The trauma of rape victims of Boko Haram. African Human Rights Law Journal, 2021. 21(2): p. 1036-1057.
12. NPC, Nigeria Demographic and Health Survey 2018. 2019: Abuja, Nigeria, and Rockville, Maryland, USA.
13. Althabe F, Moore JL, Gibbons L, Berrueta M, Goudar SS, Chomba E, Derman RJ, Patel A, Saleem S, Pasha O, Esamai F, Garces A, Liechty EA, Hambidge K, Krebs NF, Hibberd PL, Goldenberg RL, Koso-Thomas M, Carlo WA, Cafferata ML, Buekens P and McClure EM. Adverse maternal and perinatal outcomes in adolescent pregnancies: The Global Network's Maternal Newborn Health Registry study. Reproductive health, 2015. 12(2): p. 1-9.
14. Ganchimeg T, Ota E, Morisaki N, Laopaiboon M, Lumbiganon P, Zhang J, Yamdamsuren B, Temmerman M, Say L, Tunçalp Ö, Vogel JP, Souza JP, Mori R and WHO Multicountry Survey on Maternal Newborn Health Research Network. Pregnancy and childbirth outcomes among adolescent mothers: a W orld H ealth O rganization multicountry study. BJOG: An International Journal of Obstetrics & Gynaecology, 2014. 121: p. 40-48.
15. Mmari KN, Oseni O and Fatusi AO. STI treatment-seeking behaviors among youth in Nigeria: are there gender differences? International Perspectives on Sexual and Reproductive Health, 2010: p. 72-79.
16. GuttmacherInstitute, Abortion in Nigeria, GuttmacherInstitute, Editor. 2015: New York.
17. Bankole A, Adewole IF, Hussain R, Awolude O, Singh S and Akinyemi JO. The incidence of abortion in Nigeria. International perspectives on sexual and reproductive health, 2015. 41(4): p. 170.
18. Casey SE. Evaluations of reproductive health programs in humanitarian settings: a systematic review. Conflict and health, 2015. 9(1): p. 1-14.
19. Desrosiers A, Betancourt T, Kergoat Y, Servilli C, Say L and Kobeissi L. A systematic review of sexual and reproductive health interventions for young people in humanitarian and lower-and-middle-income country settings. BMC public health, 2020. 20: p. 1-21.
20. StataCorp. Stata Statistical Software: Release 14. 2015, College Station TX.
21. Alayande A, Mustapha DA, Nuhu IA, Umeh GC and Maji TJ. Trends in contraceptive use among female adolescents in Nigeria: Evidence from the Nigeria Demographic and Health Survey. African Journal of Reproductive Health, 2021. 25(5).
22. Ezenwaka U, Mbachu C, Ezumah N, Eze I, Agu C, Agu I and Onwujekwe O. Exploring factors constraining utilization of contraceptive services among adolescents in Southeast Nigeria: an application of the socio-ecological model. BMC public health, 2020. 20(1): p. 1-11.
23. WHO. Report of a WHO technical consultation on birth spacing: Geneva, Switzerland 13-15 June 2005. 2007, World Health Organization.
24. Pimentel J, Ansari U, Omer K, Gidado Y, Baba MC, Andersson N and Cockcroft A. Factors associated with short birth interval in low-and middle-income countries: a systematic review. BMC pregnancy and childbirth, 2020. 20(1): p. 1-17.
25. Odusina EK, Ayotunde T, Kunnuji M, Ononokpono DN, Bishwajit G and Yaya S. Fertility preferences among

couples in Nigeria: a cross sectional study. Reproductive Health, 2020. 17(1): p. 1-9.
26. Ameyaw EK, Budu E, Sambah F, Baatiema L, Appiah F, Seidu AA and Ahinkorah BO. Prevalence and determinants of unintended pregnancy in sub-Saharan Africa: A multi-country analysis of demographic and health surveys. PloS one, 2019. 14(8): p. e0220970.
27. Katz Aj, Ramirez Am, Bercu C, Filippa S, Dirisu O, Egwuatu I, Nmezi S, Palmer L and Baum SE. "I just have to hope that this abortion should go well": Perceptions, fears, and experiences of abortion clients in Nigeria. Plos one, 2022. 17(2): p. e0263072.
28. Shellenberg KM, Moore AM, Bankole A, Juarez F, Omideyi AK, Palomino N, Sathar Z, Singh S and Tsui AO. Social stigma and disclosure about induced abortion: results from an exploratory study. Global public health, 2011. 6(sup1): p. S111-S125.
29. Bell S, Shankar M, Guiella G, Khanna A, OlaOlorun F, Ahmad D, Omoluabi E and Moreau C. P33 Menstrual regulation: incidence, methods, and sources of this understudied reproductive practice in three countries. Contraception, 2020. 102(4): p. 287.