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Research Article

Return of Menstruation among Exclusive Breastfeeding Women in Southwest Nigeria

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Abstract

Background: Women experience variations in postpartum amenorrhea, the length of which depends on the type of breastfeeding and women's physiology. We conducted the present Study to assess the perception and pattern of resumption of menstruation, and identify the determinants of resumption of menstruation and proportion at risk of unplanned pregnancy among exclusive breastfeeding women.
Methods: Study employed sequential explanatory mixed method research design and was conducted between September and November, 2019. We collected the quantitative data using a semi-structured questionnaire from 497 exclusive breastfeeding women selected through a two-stage sampling technique in Southwest Nigeria. In addition, Focus Group Discussion guide was utilized to conduct qualitative study. The quantitative data were analyzed with SPSS version 22 using appropriate statistic, and the level of significance was $P<0.05$. We analyzed the qualitative responses thematically.
Results: Our result revealed that 43.4% of women whose postpartum period begins in less than eight weeks were amenorrheic, 65.6% of women whose postpartum period occurs between the 8th and 16th week were also amenorrheic, 85.8% of women whose postpartum period begins between 17th and 24th week remained amenorrheic. 76% of the women studied relied on Lactational Amenorrhea for contraception. Age (P=0.001, OR=0.24, CI=0.10-0.50), parity (P=0.04, OR=0.55, CI=0.31-0.79), and postpartum length (P=0.002, OR=0.23, CI=0.18-0.75) remained significant determinants of the return of menstruation.
Conclusion: A significant proportion of women studied perceived themselves to be at no risk of unplanned pregnancy which may ultimately influence timely postpartum contraceptive uptake. Advocacy should therefore focus on addressing effective contraception among this group of women.

Keywords: Menstruation, Exclusive, Breastfeeding, Women, Southwest, Nigeria

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1. Introduction

Women generally experience different degrees of delay in the return of menstruation following child birth while the length and duration of postpartum amenorrhea could be affected by both women's physiology and the type of feeding chosen for their babies. Lactating (breastfeeding) mothers generally experience longer postpartum length than non-lactating (non-breastfeeding) mothers (1). Among lactating mothers, the length of postpartum amenorrhea could vary from woman to woman and depends on the duration, frequency, and intensity of breastfeeding (1).

In recognition of the importance of early initiation of breastfeeding, the World Health Organization (WHO) recommends the initiation of breastfeeding within one hour after birth (2); this phenomenon is referred to as effective breastfeeding which entails exclusive breastfeeding for the first six months of life (no other liquid or solid is given to the infant) followed by nutritionally adequate complementary foods and continuing breastfeeding for up to two years or beyond (2). Exclusive breastfeeding has however been recognized to offer up to 98% contraceptive protection due to associated Lactational Amenorrhea (1). Breastfeeding women have been observed to experience variations in the return of their menstruation after child birth; this variation is largely influenced by both women's physiological makeup as well as the feeding pattern adopted for the baby (3).

Furthermore, studies have shown that the type of breastfeeding practices exerts a strong effect on women's resumption of menstruation and return of their fertility after delivery (4). A woman should consider any vaginal bleeding after the 56th postpartum day to be a warning indicating that her fertility might be returning (4). Studies have also revealed that there are various misconceptions about the timing of

menstruation return after delivery and the associated risks of unplanned pregnancy (5) which has been observed to contribute significantly to public health challenges, particularly among women of reproductive age in developing countries.

Findings have revealed that the majority of women in developing countries who preferred to defer their subsequent pregnancies or even stop childbearing, eventually ended up with unplanned pregnancies (6). They have equally demonstrated a significant relationship between pregnancy intension and contraceptive use and women's perception of the pregnancy-associated risks, specifically during the first six months after the previous delivery; for instance, a high proportion of breastfeeding mothers in Nigeria are aware of modern contraceptive methods, yet in spite of this, the levels of contraceptive use remains low (7).

In addition, women's low perception of risks of pregnancy has been identified as one of the main reasons responsible for the low or non-use of modern contraceptive among other reasons (8, 9). A woman is said to be at risk of unplanned pregnancy if she is sexually active, fertile, but perceived to be at low or no risk of unplanned pregnancy (10).

Return of Menstruation After Childbirth and the Associated Factors

Regarding the use of return of menstruation as a proxy measure for the return of fertility, studies have suggested a direct relationship between the return of menstruation following delivery and actual return of fertility; for instance, a study on women in Sub-Sahara Africa found that the first postpartum bleeding is a good indicator of the return of fertility among fully breastfeeding women, within the first six months postpartum (11).

The average length of postpartum period following child birth depends largely on whether a woman breastfeeds and the type of breastfeeding chosen. This is because the hormone prolactin which stimulates milk production also inhibits ovulation and subsequently the return of menstruation. On top of the above-mentioned factors, there are some other effective factors such as frequency and duration of breastfeeding, rapid weight changes (over-weight, obesity), emotional stress such as perception and fear of unplanned pregnancy, maternal vital statistics such as age, nutrition, level of education, and parity (12). Moreover, women who breastfeed on demand have been observed to have longer period of amenorrhea compared to those who breastfeed infrequently, and mothers with low nutrition are likely to have a delayed resumption of menses when compared to those with better nutrition (12).

Previous studies on breastfeeding have reported quantitative findings on the efficacy of Lactational Amenorrhea whereas further information is required regarding the timing and determinants of postpartum amenorrhea among women practicing exclusive breastfeeding in this study area. There is also dearth of information concerning the awareness of the risks associated with unplanned pregnancies among women on exclusive breastfeeding in a population like Nigeria where a gap has been reported between women's perception of these risks and their actual observed risks.

This study explored the perception of exclusive breastfeeding women of post-delivery menstruation return, examined the pattern of resumption of menstruation among women, identified the determinants of resumption of menstruation and determined the proportion at risk of unplanned pregnancy among exclusive breastfeeding women in Southwest Nigeria.

2. Methods

2.1 Study design

This research adopted sequential explanatory mixed method in which the quantitative data were collected in the first phase followed by the qualitative data collection in the second phase of the study.

2.2 Study Setting

This study was conducted among women practicing exclusive breastfeeding in Ife Central Local Government Area, Osun State, Southwest Nigeria between September and November 2019.

Ile Ife metropolitan city is the headquarter of Ife Central Local Government Area and is believed to be the cradle of the Yorubas that are a major ethnic group in Nigeria. Ile Ife is one of the most important historical towns in Southwest Nigeria and one of the largest urban centers in Osun State. Other ethnic groups like Hausas and Igbos constitute minorities in the town.

2.3 Sample Size and Sampling Technique

Sampling for the Quantitative Study

520 exclusive breastfeeding women estimated using

Fisher's formula $n=Z^2pq/d^2$ for estimating sample size were selected for the quantitative study, where n=desired sample size, Z=standard normal deviate at 95% confidence level, Z=1.96, p is the proportion of women who breastfed exclusively in previous studies in this study area, q=1 – p=0.28, and d=degree of accuracy desired, taken to be 0.05. Eligible women were selected via a two-stage sampling technique; Initially, five Primary Health Centres (PHCs) were selected from a total of 10 PHC in Ife central Local Government Area with simple random sampling technique (balloting). The second stage involved selection of exclusively breastfeeding women from a list of women in the daily attendance register in selected PHCs. Selection of exclusively breastfeeding women at the PHCs was proportionate to the total number of women attending each PHC obtained during preliminary survey. The data from 497 women were however considered in the analysis giving a response rate of 95.6%.

Sampling for the Qualitative Study

The participants of the qualitative study were selected from two Primary Health Care Centers by simple random sampling technique (balloting) out of the five Primary Health Care Centers initially selected for the quantitative study. We held two sessions of focus group discussion (FGD) in each of the two randomly selected PHCs giving a total of four sessions of FGD. The participants of the FGD in each PHC were purposefully selected based on women's parity (primipara and multipara) and a session of FGD was conducted among primipara and multipara, respectively in each selected PHCs. Eight discussants participated in each session of the FGD increasing a total of 32 participants. The participants of the FGD had similar characteristics, but were different from those selected for the quantitative study. We utilized an FGD guide with three sections for conducting the qualitative survey. The three sections of the FGD guide included perception of the return of menstruation and duration of postpartum amenorrhea,t perception of contraceptive use and the unplanned pregnancy-associated factors and risks.

Inclusion criteria: Women practicing exclusive breastfeeding in the first six months following delivery were included in this study. They attended Primary, Secondary and Tertiary Health Care facilities within the selected Local Government Areas.

Exclusion Criteria: Women who had completely stopped breastfeeding at the time of this study and those in puerperium (within six weeks post-delivery) were excluded.

2.4 Instrument for quantitative data collection

The quantitative data were collected employing interviewer-administered questionnaire containing both open and close-ended questions. The questionnaire was adapted from standard questionnaire and contained sections A-D. Section A (adapted from Demographic and Health Survey, DHS, 2018) is of thirteen questions concerning socio-demographic characteristics and personal data of breastfeeding women, section B comprises twelve close-ended questions which sought information on pattern of return of menstruation, duration of postpartum amenorrhea and associated factors, sexuality, and contraceptive use after delivery, section C consists of information on the women's perceived risk of unplanned pregnancy. We established these criteria to assess the women's actual risks of unplanned pregnancy.

Instruments and Procedures for Qualitative Data Collection

We conducted the qualitative aspect of the current work (Focus Group Discussion) employing FGD guide. The FGD guide comprises ten items and was translated to Yoruba language which is the local language of the participants. The discussions were coordinated by the researcher assisted by three trained research assistants in the Yoruba language; each session of FGD lasted for an average of 90 minutes while the responses were noted and all the relevant details were recorded. Our participants were adequately briefed about the objectives of the study, following which they were encouraged to clarify the issues and give their opinion about the subject for discussion. The FGD explored the participants' opinions about the return of menstruation after delivery, women's sexuality, contraceptive use and the associated factors, and their perception regarding the probable risks of unplanned pregnancy. Audio responses were recorded on top of field note taking. Subsequently, we thematically compared and analyzed the relevant details extracted from field notes and audio recordings.

Validity of research instruments: Validity of the research instruments were confirmed subjecting the research instruments to scrutiny by experts in Demography and Social statistics, Public Health, Obstetrics, and Gynaecology. The necessary corrections and amendments were made on the research instruments prior to the data collection.

Reliability of research instruments: We evaluated the questionnaire for the internal consistency and obtained Cronbach's alpha of 0.86.

Ethical approval was obtained from the Ethics and Research Committee of the Obafemi Awolowo University Teaching Hospitals, Ile Ife, with research protocol number of ERC/2019/08/11.

The required permissions were also obtained from authorities of Ife Central Local Government Area where this study was conducted.

2.5 Statistical Analysis

Quantitative Data Analysis

The quantitative data were analyzed with IBM Statistical package for Social Sciences, SPSS software version 22. An appropriate statistic was employed in order to test the association between dependent variables and independent variables. The level of significance was considered at $P<0.05$. We carried out univariate analysis using frequency and percentage distribution; bivariate analysis was done applying chi-square statistics to examine the relationship between outcome variable (return of menstruation) and the selected socio-demographic characteristics. Multiple regression analysis examined the simultaneous effects of independent variables on the outcome variable as well as the odds of the determinants of menstruation return among the women on exclusive breastfeeding.

Perceived risk of unplanned pregnancy: Our participants rated their perception on the likelihood of being at risk of unplanned pregnancy.

Assessed risk of unplanned pregnancy: A woman was assessed to be at risk of unplanned pregnancy based on a total score from composite measure that summarized each woman's assessed risk of unplanned pregnancy. This composite measure included resumption of menstruation, resumption of sexual intercourse, and use or non-use of modern contraceptive method. Women who resumed menstruation were scored one point while those who did not resume it were scored zero. Women who resumed sexual intercourse were also scored one point whereas those who did not resume sexual intercourse were scored zero. Furthermore, women who were not using any form of modern contraception were scored one point while those using any form of modern contraceptive method (s) were scored zero. These gave a maximum of three points and a minimum of zero point. Women with a total score of 2-3 points were rated as 'high risk' for unplanned pregnancy, while a total score of 0-1 point were rated as 'low risk' for pregnancy. The qualitative responses were analyzed and reported thematically.

Qualitative Data Analysis

Responses from FGD were extracted from field notes and audio recordings. We thematically compared and analyzed the relevant details.

Definitions and Measurement of Study Variables

Dependent Variables

Return of menstruation: This refers to the resumption of cyclic uterine shedding of blood in a woman of reproductive age following pregnancy. A woman is said to have resumed her menstruation after delivery if she experiences cyclic vaginal/uterine bleeding after the 6^{th} week or 56^{th} postpartum day (13).

Independent Variables

The independent variables in this study included the selected Socio-demographic characteristics, such as age of breastfeeding women, body mass index (BMI), and the number of children ever born (parity). Body mass index was derived from body weight (kg) divided by the square of height (m^2) and was categorized as normal (BMI between 18.5-24.9 kg/m^2), overweight (BMI between 25- 29.9 kg/m^2), and obese (30- 34.9 kg/m^2).

Exclusive breastfeeding: a woman is categorized as practicing exclusive breastfeeding if *she breastfed only with no additional feed, fruits or water for the first six months following birth.*

Other Variables

Primipara: *herein, primipara refers to women with only one child ever born.*

Multipara: multipara in this study refers to women with more than one child ever born.

3. Results

Quantitative Findings

Demographic and Reproductive Characteristics of Women

Our obtained findings demonstrated that the

majority (91.3%) of the subjects were married, 50.6% had secondary education, 36.4% had tertiary education, and 10.3% were employed in government establishments (Table 1). According to Table 2, 22.7% of these women were less than 8 weeks postpartum, 42.7% were between 8th to 16th weeks postpartum, and 34.6% were between 17th and 24th week postpartum.

Table 1 shows that 52.9 % of the breastfeeding mothers were within the age 25-34 years while only 11.3 % were within the age range 35-44 years. About 90% of the women were married while 87.3% were Yoruba, 64.9% were Christians.

Table 2 showed that 26.8% have only one child while 73.2% have between two and five children. Table 2 also showed that 74.8% of the women initiated breastfeeding within thirty minutes after birth, while 1.6% of the women commenced breastfeeding twenty four hours after delivery. About 89% breastfed approximately every 2-3 hours day and night.

Pattern of Resumption of Menstruation

The obtained results also indicated that 43.4 % of the women whose postpartum period was less than eight weeks were amenorrheic, 65.6% of the women whose postpartum period were between the 8th to 16th week were menstruation, and 85.8% of women whose postpartum period were between the 17th to 24th week remained amenorrheic (Table 3). Additionally, Table 4 depicts that about 76.1% of the women relied on Lactational Amenorrhea (LAM) as a method of contraception (Table 4).

Table 3 showed that 64 (56.6%) of women who were less than eight weeks post-partum had resumed menstruation, 74 (34.4%) of women whose post-partum period were between 8th to 16th week had resumed menstruation while only 24 (14.2%) of women whose post-partum period were between 17th to 24th week had resumed menstruation.

Determinants of Resumption of Menstruation

As could be seen in Table 5, Body mass index (P=0.03), age (P=0.01), parity (P=0.001), and postpartum length (P=0.001) were found to have significant associations with the women's resumption of menstruation following delivery at the bivariate level of analysis. Multiple regression analysis (Table 6), however, implied that women's aged 15-24 years old (P=0.001, OR=0.24,

Table 1: Demographic Characteristics of Exclusive Breastfeeding Women (N=497)

Demographic Variables	Frequency	%
Age group as at last birthday (years)		
15–24	178	35.8
25–34	263	52.9
35–44	56	11.3
Marital status		
Married	454	91.3
Single	43	8.7
Highest Level of Education		
No Formal Education	31	6.2
Primary	34	6.8
Secondary	251	50.6
Tertiary	181	36.4
Employment status		
Unemployed	40	8.0
Government employed	51	10.3
Privately employment	173	34.8
Self employed	233	46.9
Ethnicity		
Yoruba	434	87.3
Hausa	30	6.1
Igbo	33	6.6
Religion		
Christianity	323	64.9
Islam	174	35.1

Table 2: Reproductive Characteristics of Exclusive Breastfeeding Women (N=497)

Variables	Frequency (f)	%
Parity		
Primipara	133	26.8
Multipara	364	73.2
Post-partum length (in weeks)		
Less than 8	113	22.7
8 – 16	212	42.7
17 – 24	172	34.6
Body Mass Index (BMI)		
Normal	174	35.0
Overweight	298	60.0
Obese	25	5.0
Initiation of breastfeeding after birth		
Immediately after birth (30 minutes to 1 Hour)	372	74.8
After 1 hour but within 24 hours after birth	117	23.6
After 24 hours	8	1.6
Frequency of breastfeeding		
On demand (approximately every 2-3 hours, day and night)	444	89.3
Only when baby cries	53	10.7

Table 3: Pattern of Resumption of Menstruation after delivery (N=497)

Post-partum length (weeks)	Resumption of Menstruation		Total f (%)
	Resumed Menstruation f (%)	Not yet resumed Menstruation f (%)	
Less than 8	64 (56.6)	49 (43.4)	113 (100.0)
8th to 16th	74 (34.4)	141 (65.6)	215 (100.0)
17th to 24th	24 (14.2)	145 (85.8)	169 (100.0)
Total	162 (32.6)	335 (67.4)	497 (100.0)

Table 4: Contraceptive use by Exclusive Breastfeeding Women after delivery

Contraceptive use*	Frequency	%
Condom	100	20.1`
Intrauterine contraceptive device	20	4.0
Hormonal pills	13	2.6
Hormonal injection	02	0.4
Traditional method	01	0.2
Calendar method	10	2.0
Bilateral tubal ligation	10	2.0
No contraceptive (LAM)	378	76.1

*Multiple responses allowed, LAM: Lactational Amenorrhea

CI=0.10-0.50), parity (P=0.04, OR=0.55, CI=0.31-0.79), and postpartum length (P=0.002, OR=0.23, CI=0.18-0.75) remained statistically significant determinants of menstruation return after delivery. The odd that women aged 15-24 years old (OR=0.24, CI=0.10-0.50) would experience the return of menstruation at the time of this study was less than the odd for those aged 25-34 (OR=0.92, CI=0.51-1.21). Similarly, the odd that primipara (OR=0.55, CI=0.31-0.79) would experience the return of menstruation was less than the odd for multipara. Furthermore, the odd (OR=0.23, CI=0.18-0.75) that women whose postpartum length was between the 8th and 16th week would experience the return of menstruation at the time of this study was less than that of women whose postpartum length was less than 8 weeks (OR=0.63, CI=0.18-0.88).

Table 4 showed 76.1% of the women were not using any form of contraception.

Table 5 showed that frequency of breastfeeding had no significant influence on return of menstruation. among the exclusive breastfeeding women.

Table 6 showed that normal BMI (OR=0.53, P=0.30) and frequency of breastfeeding (OR=0.76, P=0.39) had no significant relationship with return of menstruation

Risk of Unplanned Pregnancies

Based on Table 7, about 41% of the women perceived themselves to be at risk of unplanned pregnancy and 30.2% were actually assessed to be at high risk of

Table 5: Bivariate Analysis of Determinants of Resumption of Menstruation after Delivery among Exclusive Breastfeeding Women

Variables	Resumed Menstruation f (%)	Not resumed menstruation f (%)	Total f (%)	χ^2	df	P
Age group as at last birthday group (years)				36.91	2	0.01
15-24	25 (14.0)	153 (86.0)	178 (100.0)			
25-34	112 (43.2)	151 (56.8)	263 (100.0)			
35-44	25 (44.6)	31 (55.4)	56 (100.0)			
Body mass Index (BMI, kg/m^2)				6.81	2	0.03
Normal BMI	43 (24.7)	131 (75.3)	174 (100.0)			
Overweight	108 (36.2)	190 (63.8)	298 (100.0)			
Obese	11 (44.0)	14 (56.0)	25 (100.0)			
Women's parity				13.36	1	0.001
Primipara	23 (17.3)	110 (82.7)	133 (100.0)			
Multipara	139 (38.2)	225 (61.8)	364 (100.0)			
Frequency of Breastfeeding				9.49	1	0.49
On demand	147 (33.1)	297 (66.9)	444 (100.0)			
Only when baby cries	15 (28.3)	38 (71.7)	53 (100.0)			
Post-partum length (weeks)				61.68	2	0.001
Less than 8	64 (56.6)	49 (43.4)	113 (100.0)			
8 weeks-16th	71 (33.0)	144 (67.0)	215 (100.0)			
17th week-24th	27 (16.0)	142 (84.0)	169 (100.0)			

*BMI: Body Mass Index, df: degree of freedom

Table 6: Binary Logistic Regression Analyses of Determinants of Return of Menstruation Among Exclusive Breastfeeding Women

Variables	P value	Odd ratio (OR)	Confidence interval (CI)
BMI			
Normal	0.30	0.53	0.25-1.55
Overweight	0.71	0.88	0.38-2.14
Obese	RC		
Age group as at last Birthday (years)			
15-24	0.001	0.24	0.10-0.50
25-34	0.82	0.92	0.51-1.21
35-44	RC		
Parity			
Primipara	0.04	0.55	0.31-0.79
Multipara	RC		
Frequency of breastfeeding			
On demand	0.39		
Only when baby cries	RC	0.76	0.30-0.99
Post-partum length			
Less than 8 weeks	0.36	0.63	0.18-0.88
8th to 16th week	0.002	0.23	0.18-0.75
17th to 24th week	RC		

*RC: Reference Category

unplanned pregnancy. Furthermore, Table 8 represents that 48.3% of the women who perceived themselves to be at risk of unplanned pregnancy were actually assessed to be at high risk of pregnancy while 82.9% of the women who perceived themselves not to be at risk of unplanned pregnancy were similarly assessed to be at low risk of unplanned pregnancy. We observed a significant relationship between women's perceived risk of unplanned pregnancy and the assessed risk of pregnancy (P<0.001).

Table 7 showed that 293 (60.0 %) women perceived themselves to be at no risk of unplanned pregnancy. Table 7 also showed that 347 (69.8%) of the women were assessed to be at low risk of unplanned pregnancy.

Table 8 showed that 104 (51.7%) women who perceived themselves to be at risk of unplanned pregnancy were actually assessed to be at low risk of unplanned pregnancy.

Qualitative Findings

The responses from the qualitative study resulted in developing five themes, namely perception of menstruation return, pattern of resumption of menstruation among FGD participants, perception of determinants of menstruation return, perception of sexuality and contraceptive use, perception of the risks associated with pregnancies.

Perception of Return of Menstruation

The FGD participants generally perceived that the return of menstruation after delivery could occur three to six months following delivery and that a woman who have not resumed menstruation after delivery may not get pregnant even if she is not using family planning. Below are some excerpts from the participants:

"…a woman who has not resumed menses cannot be pregnant even if she is not using any family planning because her ability to get pregnant has not been restored. Her body system is not yet fully recovered " a multipara at the 3rd month of postpartum

A similar point of view was expressed by another multipara who expressed that: *"…It can take up to 4-5 months after delivery for a woman to have menstruation returns depending on her body system. I usually resumed menstruation 4-5 months after I delivered unlike my friend who usually resumed it following 6 months"* a multipara at the 5th month of postpartum

Pattern of return of menstruation

The responses from the FGD revealed that the majority of the participants who were within the first three months postpartum period remained amenorrheic at the time of this study. On the other hand, about one-quarter of the participants who were between the 4th and 6th month postpartum period had resumed their menstruation. Below are some excerpts from the participants regarding the timing of menstruation return:

"…I resumed my menses at about the 2nd month after I delivered my baby. That was almost the same with my

Table 7: Risk of Unplanned Pregnancy after delivery among Exclusive Breastfeeding Women (N=497)

Risk of pregnancy	Frequency	%
Perceived risk of unplanned pregnancy		
Perceived to be risk	204	41.0
Perceive to be at no risk	293	60.0
Assessed risk of unplanned pregnancy		
Low risk	347	69.8
High risk	150	30.2
Total	497	100.0

Table 8: Relationship between Perceived risk and Assessed Risk of Unplanned Pregnancy among Exclusive Breastfeeding Women

Perceived risk of unplanned pregnancy	Assessed risk of unplanned pregnancy		Total f (%)	Statistic
	High f (%)	Low f (%)		χ^2 df P
Perceived to be at risk	100 (48.3)	104 (51.7)	204 (100.0)	56.77 1 <0.001
Perceived to be at no risk	50 (17.1)	243 (82.9)	293 (100.0)	
Total	150 (30.0)	347 (70.0)	497 (100.00	

two previous deliveries". a multipara at the 3rd month of postpartum

" …My menstruation did not come until the 4th month after I had my baby. I hope this is normal because the nurses told us that breastfeeding can keep the menses away for up to six months after delivery". a primipara at the 5th month of postpartum

Perception About Determinants of Return of Menstruation

The participants considered age, previous pattern of menstruation before pregnancy, number of previous deliveries, and use or non-use of contraception as factors that could influence the return of menstruation after delivery. Below are some opinions expressed regarding the determinants of menstruation return:

Mothers' Age as a Determinant of Return of Menses

"…In my own opinion, I think age can determine when menstruation will come back after delivery. I think older women will start menstruation earlier than younger women. I resumed menstruation the 2nd month after delivery of this baby, unlike previous deliveries when my menses came after almost six months". a multipara at the 3rd month of postpartum

A multipara at the 4th month of postpartum believed that:

"… in my opinion, a woman's return of menstruation after delivery depends on her age and the number of children the woman has had in the past. Older women may resume menstruation earlier than younger ones" a multipara at the 4th month of postpartum

This assertion was supported by another participant who opined that: *"…I think women who have given birth before may resume their menstruation earlier than those who have not given birth before. The body of such woman may take longer time to recover after delivery than a woman who have had previous deliveries"* a multipara at the 3rd month of postpartum

Another participant expressed a different opinion: *"…the use of family planning can also affect a woman's resumption of menstruation. I know a woman who used family planning (injection) but for almost one year, did not see her monthly period after delivery"* a primipara at the 5th month of postpartum

Number of Previous Deliveries (Parity)

Our subjects also took the number of previous deliveries or births into account as a factor that could influence the duration of postpartum amenorrhea. Below are some opinions of FGD participants regarding the number of previous deliveries as determinants of the return of menstruation:

"… I think women with previous deliveries will resume menstruation earlier than women who just delivered for the first time because their body might be used to the return of menstruation. My elder sister had her third child at same month I had my first baby. She has already resumed her menstruation while I am in my 5th month and not resumed it yet". a primipara at the 6th month

Perception of Sexuality and Contraceptive Use Among FGD Participants

Resumption of Sexual Intercourse After Delivery

FGD participants were asked to express their points of view on how soon after delivery should a woman resume sexual intercourse after delivery. Responses showed that about one third of the women from each of the groups at the FGD reported that a woman should be allowed 2-3 months after delivery to resume sexual intercourse while others reported that more than three months should be allowed before resuming sexual intercourse.

Cultural and Religious Belief

In expressing their views in this regard, they reported that cultural beliefs about postpartum abstinence could be the reason why a woman could stay 4-5 months after delivery before considering resumption of sexual intercourse, while a few primipara women reported that postpartum abstinence was to prevent pregnancy while others reported that not resuming sexual intercourse is to allow the women regain her reproductive capability.

Contraceptive Use After Delivery

The majority of our FGD participants were not using any form of contraception at the time of this study. The reasons given ranged from the general belief that a breastfeeding woman 'cannot' be pregnant while still breastfeeding. Other reasons given was that contraceptive use may not be necessary if the woman has not resumed sexual intercourse. Below are some opinions:

"…In my culture, a woman must not have sex while still her menses had not returned. She must wait for at least five to six months in our culture, otherwise she will be considered a promiscus woman" a multipara at the 4th month of postpartum

" …a woman must wait for at least three months before meeting her husband because if she becomes pregnant, she cannot continue breastfeeding again and the baby may not grow properly". a primipara at the 3rd month of postpartum

"… I am not using family planning now because my husband is not around. I have not had sexual intercourse since my last delivery. I will consider family planning when my husband is back home". a primipara at the 3rd month of postpartum

" In my culture , the Igalas in Kogi state in Nigeria, it is forbidden for a woman to use family planning, any woman who does contrary will surely die" a multipara at the 5th month of postpartum

Perception of Unplanned Pregnancy-Associated Risks

FGD participants generally perceived that their risk of unplanned pregnancies was low. Their reasons included *non-resumption of menstruation after delivery, non-resumption of sexual intercourse, and the general belief that women who have not resumed menstruation cannot be pregnant even if she had resumed sexual intercourse after delivery.* Below are some excerpts from FGD responses:

"…in my opinion, a woman who had not seen her menstruation cannot be pregnant. I usually resume menstruation after my baby is one year old. I usually use family planning only after one year". a multipara at the 6th month of postpartum.

A divergent opinion was however expressed by a multipara at the 4th month of postpartum who was yet to resume menstruation and she was already using contraception:

'… I am presently on family planning, IUCD to be precise. I discovered I was already pregnant three months after my previous delivery. I do not want the same thing to occur again".

The responses from the FGD also indicated that two-third of the women solely decided on contraceptive use, while a third jointly made such decision with their husband.

4. Discussion

The present study revealed that a significant proportion of the studied women remained amenorrheic giving their corresponding postpartum length. This observation was similar to the findings of the qualitative study in which a significant proportion of the participants remained amenorrheic at the time of the study. This finding is consistent with the outcome of a survey by (13) who recorded that 56% of the women practicing exclusive breastfeeding remained amenorrheic six months after delivery. Similarly, a study on breastfeeding pattern and onset of menstruation among Yoruba mothers of Southwest Nigeria by (14) reported that 62.6% of the women who breastfed exclusively for 6 months remained amenorrheic at the time of the study. Furthermore, the majority (75.6%) of women in this study relied on Lactational Amenorrhea (LAM) as they did not use any additional form of modern contraception after delivery. FGD participants likewise reported non-use of any forms of contraception with reasons ranging from the opinion that exclusive breastfeeding (LAM) confers protection against pregnancy in the first six months after delivery. However, a few of them reported non-resumption of sexual activities as the reason for their non-use of active contraception. Another reason given was that contraceptive use may not be necessary if the woman has not resumed sexual intercourse. The majority of the FGD participants solely chose their contraceptive method while only a quarter made their choice in conjunction with their spouses or partners. These suggest a high level of autonomy and informed decision making among this category of women in this sub region. Nevertheless, the above-mentioned findings contrast with the submission of a similar study among African women, among whom it was observed that major hindrance to modern contraception includes opposition from partners and family members (15).

The obtained findings also revealed that body mass index, age of women, parity, and postpartum length had a significant association with women's resumption of menstruation after delivery at the bivariate level of analysis. On the other hand, further analysis at the multivariate level indicated that women's age and postpartum length remained significant as factors influencing the resumption of menstruation after delivery. The previously mentioned observation was validated by responses from FGD in which the majority of the participants retorted that age and the number of previous births could influence the duration of amenorrhea. This finding was similar to the outcome of

a study by (16) who observed that primiparous women were more likely to have lactational problems, depressive symptoms, and anxiety and that they are prone to have longer postpartum length than multipara. In addition, younger women adhere strictly to guidelines on exclusive breastfeeding resulting in prolong period of amenorrhea (17). Similarly, (18) documented that obesity impairs ovulation and consequently the resumption of a woman's menstruation and subsequent fertility after delivery while an inverse relationship between BMI and postpartum lengths was observed by (19). A study by (12) however illustrated that the frequency and duration of breastfeeding, weight changes, emotional stress such as perception or fear of unplanned pregnancy, maternal age, level of education, and parity influenced postpartum length. Furthermore, (20) in their study on predictors of puerperal menstruation conducted among postpartum women in Enugu, Nigeria observed that postpartum women's age, parity, early use of family planning, and socio-economic status were significantly associated with the return of menstruation during the puerperium.

The findings herein also revealed that 82.9% of the women who perceived themselves to be at no risk of unplanned pregnancy were similarly assessed to be at low risk of unplanned pregnancy. This finding was in accordance with the responses from the qualitative study in which the FGD participants generally perceived that they were at low risk of unplanned pregnancies. A study in Southwest Nigeria by (21) exhibited that non-lactating mothers were at potential risk of unplanned pregnancy while (22) in a study in Southwest Nigeria it was also found that a third of breastfeeding women correctly admitted being at risk of unplanned pregnancy in the postpartum period.

Limitation of the Study

This study was conducted in Southwest Nigeria; therefore, the findings might not be generalized as representative of a national survey. This study was a cross-sectional survey which may not permit establishing causality for the return of menstruation among these women. The current work could not control the physiological variabilities associated with different postpartum lengths of the women.

Implication of Study Findings

Our findings provided empirical data on probable determinants responsible for variations in postpartum amenorrhea and the relationship between women's perceived risk of unplanned pregnancy and their assessed risk. The results would therefore contribute significantly to the development of appropriate policies addressing the gap reported between women's perception of the risks associated with unplanned pregnancies and their observed risk in Nigeria. Further studies in this regard are recommended for other regions of the country using the data from this study as template.

5. Conclusion

A significant proportion of the studied women perceived themselves to not be at risk of unplanned pregnancy, which may ultimately influence timely postpartum contraception. Advocacy should therefore focus on addressing effective postpartum contraceptive uptake among this group of women. Women's age, parity, and post-partum length were the main predictors of the resumption of menstruation after delivery. Intervention programs should therefore take cognizance of these variables in order to reduce the misconceptions concerning postpartum health and wellbeing.

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