

Acceptance and choices of family planning methods of post-delivery women in a midwife obstetric unit in South Africa

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Background. The benefit of utilising reliable family planning (FP) is adequate birth spacing, reducing unplanned and unwanted pregnancies, and minimising the chances of preterm birth and babies of low birthweight.

Objectives. To estimate the choices and acceptance rates of FP methods among HIV-positive women immediately after delivery, and the factors associated with acceptance.

Methods. A retrospective descriptive research design was implemented. All women who gave birth in a midwife obstetric unit (MOU) during January 2018 to December 2019 were included. Logistic regression analysis was performed to identify predictors for acceptance of any and or double FP methods.

Results. A total of 1 442 women were included, and of these, the majority (93.4%) accepted any FP method. Double methods were accepted by 83% of women. The majority (84%) accepted injectable contraception. Only 7.1% accepted and inserted sub-dermal implants, and 7.2% intrauterine contraceptive devices. Women who did not initiate antenatal care (ANC) during pregnancy were 65% (odds ratio (OR) 0.35, 95% confidence interval (CI) 0.15 - 0.78, $p=0.011$) less likely to accept any FP method compared with those who had ≥ 8 ANC visits. HIV-positive women with gestational age (GA) at delivery <32 weeks, were 81% (OR 0.19, 95% CI 0.08 - 0.45, $p<0.001$) were less likely to accept any FP method compared with those who delivered at term, and with GA at delivery 33 - 36 weeks the proportion was 48% (OR 0.52, 95% CI; 0.29 - 0.94, $p=0.03$). Similarly, HIV-positive women who had had stillbirths were 68% (OR=0.32, 95% CI 0.15 - 0.65, $p=0.002$) less likely to accept any FP method compared with those who had live births. Mothers who did not have ANC visits were 65% (OR=0.35, 95% CI; 0.16 - 0.76, $p=0.008$) and mothers who had HIV infection were 37% (OR=0.63, 95% CI; 0.42 - 0.93, $p=0.022$) less likely to accept double FP methods compared with those who had ≥ 8 ANC visits and were not infected with HIV, respectively.

Conclusion. Overall, high acceptance of FP was found among postpartum women. ANC, GA at delivery and having live births were significantly associated with acceptance of any FP and double FP methods of protection. Further prospective study is recommended to identify whether the acceptance of FP services in the postpartum period continues at such a high rate.

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Family planning is one of the most cost-effective and powerful public health interventions in saving lives of women and newborns globally.^[1] Reliable and effective contraceptive methods offered and accepted in the postpartum period are of the utmost importance. Accepting a quality contraceptive method is known to reduce maternal and childhood mortality and morbidity.^[2] It aids in optimising the intervals between pregnancies and is associated with minimising adverse neonatal outcomes such as morbidity and mortality.^[3] In addition, the use of postpartum contraception has the potential to reduce unplanned and unwanted pregnancies that are associated with delays in initiating antenatal care (ANC), the probability of not breastfeeding, and postpartum depression of mothers.^[4,5] It also allows women to lead healthier lifestyles and provides opportunities to establish a career, thus reducing poverty and enabling independence, empowerment and the economic

well-being of women and the family. It allows women to control birth spacing and size of the family, and for children to develop physically, mentally and emotionally well.^[6,7]

The literature has shown that unplanned pregnancies, teenage pregnancy, women of older age and multiparous women are at higher risk of adverse pregnancy outcomes and maternal and neonatal morbidity and mortality.^[8] According to the World Health Organization (WHO)'s most recent study, there are 1.1 billion women of reproductive age worldwide who need family planning, while 25% of those needs remain unmet.^[9] Universal access to sexual and reproductive health services is included in the Millennium Development Goals (MDGs), and has been carried forward into the Sustainable Development Goals (SDGs).^[10] In sub-Saharan Africa, the use of contraception among women aged 15 - 49 years has risen, more than doubling from 1990 to 2015, and yet it is estimated that

24% of these women have an unmet need for contraception.^[10] Accessibility and proper use of modern family planning methods ensures significant health and non-health-related benefits. It has been shown that a birth space <2 years results in an infant mortality rate 45% higher than a birth space of 2–3 years, and it is 60% higher compared with birth spacing of ≥4 years.^[11]

In South Africa (SA), the use of modern contraception is high (65%) among sexually active women, where modern contraception includes sterilisation in both men and women, oral contraceptive pills, injectable contraceptives, copper intrauterine devices, implants such as Implanon and emergency contraception.^[7] The SA National Department of Health strengthened its family planning initiatives through a policy that aimed to reprioritise modern available contraceptive methods for family planning in 2012.^[7] This initiative was pursued by encouraging healthcare providers to emphasise to clients the use of dual protection.^[12] Available and recent information on family planning services is outdated. However, the 2009 Department of Health annual report mentioned that only 30% of healthcare facilities managed to provide dual protection to their clients.^[7] Recognising the need for further action, the SDGs were established in 2015, and these included universal access to sexual and reproductive health.^[13] The National Contraception Clinical Guidelines in SA were revised in 2019 based on the WHO medical eligibility criteria (MEC) for family planning methods.^[14,15] These changes included contraceptive counselling, particularly in the HIV era, postpartum contraception, contraception for adolescents, and promotion of the concept of dual protection.^[14] The WHO MEC emphasise safe use of contraceptives, and are reviewed every 5 years based on the most recent available contraceptive methods.^[15] The latest SA Demographic Health Survey 2016^[16] reports that almost all (99%) women and men have heard of modern contraception methods, and 60% of sexually active women use a modern method.

However, with the present challenges in SA, such as an overwhelming HIV positivity rate, high rates of child and maternal morbidity and mortality and teenage pregnancy, the successful implementation of family planning and the accessibility of safe and reliable contraceptive methods are fundamentally necessary interventions. The integration of family planning and HIV services is an important and financially feasible programme for women infected with HIV who do not want to become pregnant, preventing the transmission of HIV to the newborn, reducing the need for antiretroviral therapy in children.^[17]

Postpartum family planning (PPFP) is essential for maternal and newborn health, but is often not systematically addressed after childbirth. Therefore, the objectives were to estimate and describe the family planning options adopted by women who had given birth, and to identify associated factors for acceptance of family planning.

Methods

Study design and sample

A retrospective cohort study design was adopted. All women who gave birth in a midwife obstetric unit (MOU) from January 2018 to December 2019 were included in the study.

Study setting

The study was undertaken at a primary healthcare (PHC) facility run by a public health department. It is situated in a peri-urban communities encompassing Kwadabeka and Clermont within the Durban metropolitan area, with a predominantly black population of 150 000. Most of them are not wealthy, living in both informal (mainly) and formal types of dwellings, and have a healthy cultural relationship with people residing in the rural areas of both KwaZulu-Natal and the Eastern Cape Provinces. The PHC facility provides a full package of PHC services, including reproductive health services.^[18] Pregnant women attend ANC and delivery services at this health facility free of users' fees. A maternal health service is fully functional at the facility, with services for childbirth operational 24 hours a day. These services are rendered by qualified and professional skilled midwives. According to the national guidelines, the maternity unit is responsible for ensuring that ANC services, treatment of pregnancy-related conditions, managing labour and childbirth services, postnatal check-ups and the management of emergencies during antenatal and delivery services as well as referral to appropriate hospitals in Ethekweni district are made available to all pregnant women. ANC and delivery services are rendered according to the national protocol and guidelines.^[18] All pregnant women are counselled on options for family planning methods and the best choices available to them based on their age, parity, medical conditions (chronic diseases) and treatment (if any) during antenatal visits. During the postnatal period at the facility, all women are counselled and provided with the provisions of modern methods of contraception for family planning before being discharged home. Women who refuse family planning are requested to reconsider their decision during their postpartum check-up visits. Every woman who receives or refuses family planning is recorded in the birth register.

Data collection

Data were collected from the labour ward birth register. The register is the official register for all births or deliveries, referrals (if required after delivery) and discharges. The register contains the name, age, parity, number of antenatal visits, time of admission, delivery and discharge, and pregnancy outcomes (live births, fresh/macerated stillbirths, neonatal deaths, APGAR scores in 1 and 5 minutes, birthweight of the baby and maternal deaths) and the family planning method accepted by the postpartum mothers.

Data analysis

Data were collected by research assistants who were trained in Excel (Microsoft, USA) and were made in double entry to prevent error. Data were exported and analysed using SPSS 22.0 for Windows (SPSS, USA). The baseline demographic and outcome variables were summarised using descriptive summary measures, expressed as mean (standard deviation) for continuous variables and percentages for categorical variables. Cross-table analysis with Pearson χ^2 and *p*-values was used. Significant independent variables were used in step-by-step (backward) logistic regression analysis with the outcome variables (acceptance of any family planning method and double methods). All statistical tests were performed

using two-sided tests at the 0.05 level of significance. For regression models, the results were expressed as effect with adjusted odds ratios (OR) for binary outcomes with corresponding two-sided 95% confidence intervals (95% CI), and associated p -values. $P < 0.05$ was considered significant.

Ethical considerations

The ethical principle for undertaking research on human subjects was considered. The Umgungundlovu Health Ethics Review Board issued ethical clearance (ref. no. UHERB 015/2020). Further permission was sought from the Provincial Research Committee of KwaZulu-Natal to undertake this research. Additional permission was obtained from the management of the health facility to use the relevant data for the study.

Results

A total of 1 628 pregnant women delivered during the study period, and 186 mothers were referred to hospital for maternal (88) and neonatal (98) complications after birth. Therefore, the total number of study subjects was 1 442 (Table 1). The teenage pregnancy rate was 15%. More than half (58%) of the mothers were between 20 and 29 years of age. Half of them (49%) had parity between 1 and 2. The proportion of mothers who did not have ANC was 6%. However, most of the mothers (76%) had had four or more antenatal visits. The prevalence of HIV was 44.1%. Any choice of family planning method was accepted (Table 2) by 93.4% of the women, while the majority (83.0%) accepted two (double) methods, leading to double protection. Only two women opted for permanent sterilisation. Similarly, very few (0.9%) accepted only an oral contraceptive.

Among those who accepted any or double contraception methods, the majority (84%) accepted injectable contraception. Of these, 96% accepted injectable medroxyprogesterone, which provides contraception/protection for 3 months, and 4% norethisterone, which gives protection for 2 months. Only 7.1% accepted and inserted subdermal implantation, and 7.2% intrauterine contraceptive devices. The female condom was accepted by 7.2% of mothers. Analysis using logistic regression discovered factors associated with accepting or not accepting any type of family planning method (Table 3), and these were: having ANC while pregnant, the quantity of ANC visits, the GA at delivery and the live birth of babies to HIV-positive women. The women who had no ANC during pregnancy were 65% (OR=0.35; 95% CI 0.15 - 0.78; $p=0.011$) less likely to accept family planning compared with those who had ≥ 8 ANC visits. Women who delivered at GA ≤ 32 weeks were 81% (OR= 0.19, 95% CI 0.08 - 0.45; $p < 0.001$) less likely; and women who delivered at GA 33 - 36 weeks were 48% (OR=0.52, 95% CI 0.29 - 0.94; $p=0.03$) less likely to accept family planning compared with those who delivered at term (37 - 42 weeks GA). Similarly, HIV-positive women who had stillbirths were 68% (OR 0.32, 95% CI 0.15 - 0.65; $p=0.002$) less likely to accept FP compared with those who had live births. Mothers who did not have ANC were 65% (OR 0.35, 95% CI 0.16 - 0.761; $p=0.008$) less likely to accept double FP methods compared with those had ≥ 8 ANC visits. Women with HIV infection were 37% (OR 0.63, 95% CI 0.42 - 0.938;

$p=0.022$) less likely to accept double FP methods (dual protection) (Table 4) compared with those who had no HIV infection.

Discussion

The acceptance rate of a family planning method in the postpartum period in our study was high (93.4%). This rate is much higher than the national rate, where the prevalence of contraceptive use is 60% in sexually active women in SA, and the provincial rate for KwaZulu-Natal is 65%.^[16] When compared with the findings of a systematic

Table 1. Frequency distribution of demographic, antenatal and pregnancy outcome indicators at the time of delivery

Variable	n (%)*
Age, years (n=1 442)	
≤19	212 (14.7)
20 - 24	412 (28.6)
25 - 29	416 (28.9)
30 - 34	282 (19.6)
≥35	120 (8.3)
Mean (standard deviation)	25.9 (5.67)
Parity (n=1 418)	
Nil	428 (30.2)
1 - 2	487 (34.3)
3 - 4	309 (21.8)
≥5	194 (13.7)
Antenatal visits, n (n=1 427)	
Unbooked	88 (6.2)
1 - 4	441 (30.9)
5 - 7	578 (40.5)
≥8	320 (22.4)
Birth before arrival	65 (4.0)
HIV status (n=1 442)	
Negative	797 (55.9)
Positive	645 (44.1)
Birth outcomes (n=1 442)	
Live birth	1 418 (98.3)
Stillbirth	24 (1.7)

*Unless otherwise indicated.

Table 2. Choices of family planning methods (N=1 442)

Variable	n (%)
No contraception	96 (6.6)
Single method	150 (10.4)
Double method	1 196 (83.0)
Choice of methods	
Sterilisation	2 (0.3)
Oral contraception alone	13 (0.9)
Female condoms	109 (7.2)
Subdermal implant alone	107 (7.1)
IUCD inserted	208 (13.7)
Injectable contraception	1 276 (84.1)
Medroxyprogesterone alone	1 224 (95.9)
Norethisterone enanthate	52 (4.1)

IUCD = intrauterine contraceptive device.

Table 3. Logistic regression output for accepting any contraception

Variable	p-value	Adjusted OR	95% CI for OR
ANC visits, <i>n</i>	0.007		
0	0.011	0.352	0.157 - 0.787
1 - 3	0.787	1.089	0.588 - 2.015
4 - 7	0.392	1.302	0.712 - 2.380
GA coded, weeks*	0.000		
<32	0.000	0.197	0.086 - 0.452
33 - 37	0.031	0.529	0.297 - 0.944
HIV-positive mothers	0.006	-	-
HIV-positive mothers with stillbirths	0.002	0.320	0.157 - 0.651
Constant	0.999	18 946.000	-

OR = odds ratio; CI = confidence interval; ANC = antenatal care; GA = gestational age.

*Reference group: ANC visit ≥ 8 , GA ≥ 37 weeks and live birth to HIV-positive woman.**Table 4. Logistic regression output for accepting double family planning methods (dual protection)**

Variable*	p-value	Adjusted OR	95% CI for OR
ANC visits, <i>n</i>	0.045		
0	0.008	0.353	0.164 - 0.761
1 - 3	0.440	0.806	0.466 - 10.394
4 - 7	0.717	0.906	0.532 - 10.543
HIV-positive	0.022	0.634	0.429 - 0.938
Constant	0.999	2925.927	

OR = odds ratio; CI = confidence interval; ANC = antenatal care.
Reference group: ANC visits > 8 , HIV-negative.

review of contraceptive use in the postpartum period among women in low- and middle-income countries, the contraception prevalence rate across all regions of Africa is only 41.2%, with the lowest in West Africa (36.3%).^[19] Our findings are much higher than the acceptance rates found in Zambia and Pakistan, at 73.5% and 23.1%, respectively, and in Ethiopia where the uptake of a family planning method by women in the postpartum period is only 45.4%.^[20,21] The higher acceptance rate in our study indicates that majority of the women who delivered in this health facility would like to defer or prevent a subsequent pregnancy in the near future by accepting a family planning method.

This higher rate of acceptance can be justified by the easy accessibility of our health institute for pregnant women, as our study was conducted in a peri-urban setting, whereas the studies mentioned above were conducted in rural areas, where access to health institutions is difficult and reproductive health service utilisation is poor. Although postpartum contraceptive methods are universal, additional transportation costs may pose a barrier in accessing health facilities and family planning materials and methods.^[22] Furthermore, 43% of our study subjects are young (<25 years of age), suggesting that these women prefer to empower themselves by pursuing a career, becoming independent and earning an income. Our findings differ from those in a Kenyan study, which indicated that the acceptance of family planning methods in women aged 15 - 24 was low despite adequate knowledge.^[23] However, it is not known what proportion of women from the present cohort would continue with the family planning method and contraception. A prospective follow-up study would therefore be required to establish such a trend.

The present study found that ANC during pregnancy is a significant predictor for the acceptance of postpartum family planning methods. Women in this study who received no ANC during their pregnancy were 65% less likely to accept any form of family planning method. The likelihood of adopting a modern family planning method is positively associated with the frequency of antenatal visits. This finding concurs with the findings of a study conducted in both Zambia and Kenya that showed that the ANC visits score was significantly and positively related to postpartum family planning acceptance.^[24] These findings highlight the necessity and importance for both antenatal attendance and postpartum services, including counselling on family planning to improve or to increase the acceptance of family planning methods in the postpartum period. One plausible explanation for this positive association could be the rapport and trust developed between the midwife and pregnant women during antenatal visits. Furthermore, midwives integrate maternal health services and use the ANC visits as opportunities to create awareness of family planning methods and intensively counsel women on the importance and benefits of adopting a family planning method after childbirth. However, our finding differs from that of a longitudinal study in Ethiopia that assessed the effects of family planning services on postpartum family planning behaviour.^[25] This longitudinal study found that women who received counselling during both antenatal and postpartum visits more frequently accepted/adopted a family planning method during the postpartum period compared with those women who received counselling only during the postpartum period. The acceptance of family planning in the postpartum period is low, especially in sub-Saharan Africa, hence

antenatal visits allow for a unique opportunity to promote the use of postpartum family planning methods.^[26] The findings show that women who receive ≥ 4 antenatal visits during pregnancy are three times more likely to adopt family planning methods in the postpartum period than those who had no ANC during pregnancy. Lori *et al.*'s^[26] conclusion is that pregnant women who attend ANC visits are more likely (OR 8.0) to accept and use family planning methods in the postpartum period.^[21,26]

Our findings on HIV status and uptake of family planning methods concur with the findings of a study in Swaziland, which concluded that there were significant differences between HIV-positive and HIV-negative women in accepting any family planning methods.^[26-28]

The logistic regression (Table 4) further demonstrates that HIV-positive women were 40% less likely to use dual family planning methods than those who were HIV-negative. The utilisation of dual protection as family planning methods is highly recommended in HIV-positive women as it aids in preventing mother-to-child HIV transmission during childbirth.^[29] A study based on the analysis of data from the Kenya Demographic and Health Survey (DHS) provides evidence that there is minimal use of family planning methods in women living in communities where the HIV prevalence is high, and agrees with our findings that women who are HIV-positive are two times less likely to accept dual family planning methods than women who are HIV-negative.^[30] Magadi and Magadi^[30] explain that a contributing factor to this finding was that HIV-negative women in the survey fell in the richer wealth quantile, as opposed to HIV-positive women, who were poorer. SA's latest DHS also indicates that the use of injectable contraception in SA decreases (13%) with increasing wealth quintile and increases (31%) in women who fall into the lower wealth quintile.^[16] Our finding of an association between HIV-positive women and the use of dual family planning methods concurs with the findings of a study in Soweto, SA, which found that HIV-positive women are more inclined to use dual forms of contraception.^[28] This study highlights the fact that condoms and injectable contraception are the most common dual forms of contraception chosen. The use of a barrier method such as condoms (both male and female) can prevent sexually transmitted infection (especially HIV and syphilis) among partners, which is common in our population.

The progesterone-only injectable is the most common form of contraception used in the USA.^[31] This could be due to the injectable contraception providing either 2 or 3 months of protection. This differs from the forms of contraception chosen in a study undertaken in Ethiopia, which indicated that the intrauterine device and condoms were the main forms of dual protection among HIV-positive women, possibly owing to potential adverse drug interaction between antiretroviral drugs and oral contraception.^[32]

The acceptance rate of subdermal implants in our study was low at 7.1%, compared with the high acceptance rate of injectable contraception of 84.1%. This trend is also noted worldwide, where injectable contraception is used by 6% of women in contrast to 1% of subdermal implants, with under half (43%) of sub-Saharan African women using injectable contraception as their predominant method of family planning.^[33] A study from SA indicates that

injectable contraception (25%) is the main method of contraception chosen in SA, compared with subdermal implants (4%).^[16] The reason for the marked variation between these two choices of contraceptive methods is most likely the early discontinuation of subdermal implants resulting from the unpredictable, continuous and unacceptable vaginal bleeding.^[34,35]

Preterm birth is defined as childbirth <37 weeks of pregnancy.^[36] The present study found a statistically significant association between GA and the acceptance of family planning methods. Women who delivered at or before 32 weeks and between 33 and 36 weeks' GA are 90% and 50%, respectively, less likely to accept a family planning method after childbirth. These findings could reflect such women fearing the death of pre-term babies. However, findings from a longitudinal study from Brazil disagree with this hypothesis for their population.^[37] The findings in the Brazilian study estimated that women who had had a miscarriage were almost twice as likely to accept and use a family planning method in the 6 months following the miscarriage as those who had not.

Conclusion

The acceptability of adopting a family planning method in this study is exceptionally high. The accessibility and use of antenatal services can be used as an opportunity to promote and improve the acceptability of family planning uptake in the postpartum period. Dual methods of contraception were the most commonly accepted and utilised by women in the postpartum period in this study. The choice of injectable contraceptives heavily outweighs the remainder of other family planning methods offered. Further prospective study is recommended to identify if the acceptance of family planning services chosen in the postpartum period continues at such a high rate. Policy-makers must ensure that strategies are in place to address unmet family planning needs and prioritise the uptake of family planning services offered.

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