Relationship power and partner support for family planning among postpartum adolescents in Kenya

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Abstract

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Background: Adolescent girls and young women (AGYW) in sub-Saharan Africa have significant unmet need for family planning (FP). Lack of partner support for FP may be a barrier to contraceptive use, and low relationship power may negatively impact AGYW's ability to negotiate FP use and fertility desires with their partners. Research on partner support for family planning (FP) and relationship power dynamics among adolescents is lacking, and understanding these associations is important to provide optimal services that effectively address barriers AGYW face to access contraception. We aimed to identify correlates of partner support for FP after delivery and risk factors of low relationship power among AGYW in in Kenya.

Methods: We conducted a cross-sectional study using survey data collected at two public-sector hospitals in the Nyanza region of Kenya. We used Poisson generalized linear regression with a log link function to assess for correlates of reported partner support for FP and low relationship power. Relationship power was measured using the Sexual Relationship Power Scale (SRPS). Categorical variables for all AGYW were compared using chi-square tests in analyses of social support for FP and of factors considered important in FP decision-making.

Results: Overall, 498 postpartum AGYW, aged 14-21, participated in our study. Among AGYW with partners (n=353), relationship power was lower among those who reported their last pregnancy was unintended compared to intended/ambivalent (POR=2.58; 95% CI 1.79 to 3.72; $p<0.001$) and

relationship power was higher among current contraceptive users than non-users (POR=0.55; 95% CI 0.38 to 0.79; p=0.001). AGYW who indicated that they had ever discussed FP with their partner, their partner knew about their FP use, or had received FP counseling with partner had lower odds of low relationship power (p<0.001 for all). Factors related to increased couple communication about FP were also associated with higher reported partner support for FP after delivery, including discussing FP with partner (POR=1.76; 95% CI 1.27 to 2.44, p<0.001), partner knowing about their FP (POR=2.41; 95% CI 1.53 to 3.80, p<0.001), and receiving FP counseling with partner (POR=1.32; 95% CI 1.02 to 1.70, p<0.001).

Conclusion: We found AGYW whose pregnancies were unintended had higher odds of low relationship power, whereas AGYW who used modern contraception in the postpartum period and who reported more communication about FP with their partner were more likely to report high relationship power. Partner support for FP was reported more often among AGYW who communicated with their partner about FP or received counseling about FP with their partner. AGYW with low relationship power may not be able to negotiate with their partner about their fertility intentions or preferences. Intervention strategies that encourage couple communication about FP may be effective in increasing partner support for FP and mitigating the risks to negative reproductive health outcomes associated with low relationship power.

Background:

Adolescent girls and young women (AGYW) aged 14-21 in sub-Saharan Africa are at high risk for adverse pregnancy outcomes, and have substantial unmet need for family planning (FP) (1–3). In some regions, social pressure from parents and community members encourages abstinence and discourages FP use among AGYW prior to marriage(4,5). After marriage, many AGYW are encouraged by partners and mothers-in-law to have children or to "prove" their fertility (4–6). Studies suggest that community and family support for FP may increase after AGYW become mothers, as birth-spacing is socially encouraged and parents may see FP as a way to support AGYW in continuing their education (5,7). Additionally, research suggests that women may receive more support for FP from partners after delivery(8), which aligns with reports from AGYW of increased partner support after their first birth (5).

Partner support for FP is an important influence on FP use in sub-Saharan Africa, and prior research shows that women with perceived partner support for FP use are more likely to use FP (4,8). In many settings, it is common for men to be the primary decision makers about family size and FP, and lack of partner support has been identified as a barrier to FP use (7,9–11). Opposition to FP, often by a partner, is a primary reason for non-use among Kenyan women who do not want to become pregnant (3). In addition, some studies have found that male partners associate use of FP with infidelity or prostitution (5,9,10,12,13). In Kenya, some adolescents have reported their partners forbade them from using FP or withheld funds for FP (5), which may be reflective of power imbalances in adolescent relationships.

Relationship power dynamics interact with partner support for FP in important ways. In some African settings, FP use is higher among women with more decision-making autonomy in their sexual relationships (4,14). Adolescents may be more vulnerable to power disparities in their sexual relationships (15), which may influence contraceptive decision-making and use (5,7,16). Lack of relationship power may be more pronounced among AGYW, many of whom have older partners and less economic power, undermining their ability to make contraceptive decisions (15).

The Sexual Relationship Power Scale (SRPS) is used to quantify power within sexual relationships (17). The SRPS was originally developed among a sample of adult American women to study the relationship between power dynamics and HIV transmission (17), but has subsequently been used in a variety of contexts internationally and among vulnerable populations including adolescents, HIV positive women, and sex workers (18–21). The SRPS was developed using the theory of gender and power and the social exchange theory to measure gender based inequality within heterosexual couples with the conclusion that structural power disparities manifest in unequal gender power in individual relationships (17,22–24). This scale has been used to understand the impact of sexual relationship power on numerous health outcomes, including intimate partner violence, malnutrition, and HIV transmission (18–21). Furthermore, low relationship power, measured with the SRPS, has been linked to several adverse outcomes among AGYW in Kenya, including sexual violence, physical partner violence, and condomless sex (20).

The relationship between partner support for FP and relationship power dynamics among AGYW in LMICs has not been well characterized. Understanding the influence of partner support and relationship power dynamics on adolescent's decision-making is important to provide services that best address the barriers to contraceptive use faced by AGYW. We aimed to characterize partner support for FP after delivery and to identify correlates of low relationship power among AGYW in in Kenya.

Methods:

Study design and population: We conducted a cross-sectional study on partner support for FP and low relationship power among AGYW in the Nyanza region of Kenya. AGYW were enrolled at the Bondo Sub-County and Ahero County Hospitals, public sector facilities. Eligible participants were between 14-21 years of age and attending an immunization visit or seeking maternal and child health (MCH) care at 9 months postpartum. Study staff and MCH clinic staff at both facilities approached potential participants and informed them about the study. AGYW who met eligibility criteria and were interested in participating provided written consent prior to study participation.

Procedures: Each survey took approximately 30-45 minutes to administer by trained study staff, and included questions on maternal demographics (age, education, marital status, gravidity), HIV status, partner characteristics, contraceptive use, and decision-making factors for FP use. Additionally, participants were asked about couple communication, partner support for FP use, and relationship power. Surveys were administered in the participants' language of choice: Luo, Swahili, or English.

The Institutional Review Board (IRB) at the University of Washington (UW) and the Kenyatta National Hospital (KNH)/University of Nairobi (UoN) Ethics and Research Committee (ERC) reviewed and approved this study.

Statistical analysis: AGYW were classified as having support for FP if they said their partners, family, and community were "very" or "somewhat" supportive of FP use. Similarly, factors relating to decision-making about FP use were classified as important if women said factors were either "very" or "somewhat" important. Decision-making factors included duration of coverage (e.g., 3 months for contraceptive injection, 3 years for contraceptive implant, 3-10 years for copper IUD); time until return to fertility; partner preference; ability to conceal methods from partners or family; cost of FP method; and side effects the participant had heard about, experienced, or knew someone who had experienced them. We defined contraceptive use prior to the most recent pregnancy as any contraceptive use before the most recent pregnancy. Modern contraception was defined as using oral contraceptive pills (OCPs), injectables, implants, intrauterine devices (IUDs), bilateral tubal ligation, vasectomy, male condoms, standard days method (periodic abstinence), or emergency contraception (25).

We measured relationship power using the Sexual Relationship Power Scale (SRPS), a validated scale of sexual relationship power (17). The SRPS has also been validated among AGYW in the Nyanza region of Kenya (17,20). The scale includes 23 questions, divided into two subscales: the relationship control (RC) factor subscale and the decision-making dominance (DMD) subscale. The DMD subscale is intended to assess who has more decision-making power within the couple(17,18,26). The RC subscale focuses on the woman's independence and gender inequality within the relationship, with respondents replying on a 4-pojnt Likert Scale from strongly agree to strongly disagree with statements (17,18,21,26). Individual scores for each subscale are calculated as a mean of each question the participant responded to, then rescaled as a range of 1-4. The subscale scores are combined with equal weight given to each subscale, and again rescaled as a range of 1-4 for the overall score. Participants with scores in the lowest tertile of the study population on the SRPS (<2.05) were classified as having low relationship power.

Categorical variables for all AGYW were compared using chi-square tests in univariate analyses of social support for FP and of factors considered important in FP decision-making. Separate multivariate Poisson generalized linear regression models with a log-link function were used to assess correlates partner support for FP and risk factors for low relationship power (27); regression analyses were restricted to AGYW who reported that they currently have a partner at the time of the survey. We assessed the following characteristics in the model for relationship power using the overall SRPS scale: maternal age, education, marital status, partner age difference, and HIV status. We also similarly analyzed the RC subscale on its own, as it has been shown to have reliable psychometric properties among younger women and international populations, (20,23).

In the analysis of partner support for FP after delivery, we adjusted for age and partner support for FP before delivery as *a priori* confounders, and in the analysis for correlates of low relationship

power, we adjusted for age and education as *a priori* confounders. For all analyses, variables significant in the unadjusted analysis at p <0.05 were considered in the multivariate models. We also assessed for collinearity between variables in the model by examining the change in the standard error when introducing a third variable into the model, and excluded variables that changed the standard error by more than 10%. All statistical analysis were conducted using STATA version 15.1 (College Station, TX).

Results:

Among 498 postpartum AGYW between the ages of 14-21 who participated in this study, 158 (32%) were 14-18 years old, 113 (32%) had completed < 9 years of education, and 120 (24%) were enrolled in school (Table 1). Many (39%) AGYW reported being an orphan. Additionally, the majority (70%) of all AGYW were primigravida. Overall, 353 (71%) AGYW had a partner, among whom 254 (51%) were married. Of the AGYW with partners, 69% had partners who were ≥ 5 years older and 91% had been with the same partner for ≥1 year. Nearly all AGYW (94%) with partners reported receiving financial support from their partners and most lived with their partners (71%). Among all AGYW, the majority (76%) reported desiring a pregnancy in the next two years, and 56% reported using modern contraception at 9 months postpartum. Among all contraceptive users, the most common forms of modern contraception used in the postpartum period were dual methods [condoms and another modern contraceptive method] (30%), implants (29%), and injectables (26%) (Figure 1). Only 36% of AGYW reported the last pregnancy was unintended, and 33% used modern contraception before their last pregnancy. Most AGYW with partners (86%) reported their partner knew about their current contraceptive use, 75% discussed FP with their partner, and 25% received FP counseling with their partner.

Low relationship power:

Among all AGYW with partners, the mean scores, on a scale of 1-4, were 2.36 (Standard deviation (SD) = 0.65) for the SRPS and 2.87 (SD = 0.54) for the RC subscale; 33% had low relationship power on the SRPS overall scale by definition, and 35% had low relationship power on the RC factor subscale. Current contraceptive users were less likely to have low relationship power (27%) than AGYW not using contraception (49%) (Prevalence odds ratio (POR)=0.55; 95% CI 0.38 to 0.79; p=0.001), but those using modern contraceptive prior to their most recent pregnancy were more likely to have low relationship power (55%) compared to those that were not (23%) (POR= 2.39; 95% CI 1.66 to 2.44; p<0.001) (Table 2a). Relationship power was also lower among AGYW who reported their last pregnancy was unintended (56%) compared to intended/ambivalent (22%) (POR=2.58; 95% CI 1.79 to 3.72; p<0.001). AGYW who indicated that they had ever discussed FP with their partner (POR=0.49; 95% CI 0.34 to 0.72, p<0.001), their partner knew about their FP use (POR=0.34; 95% CI 0.23 to 0.51; p<0.001), or received FP counseling with partner (POR=0.23; 95% CI 0.11 to 0.46; p<0.001) had lower odds of having low relationship power. Despite a strong relationship between stable household income and low relationship power (POR= 4.55; 95% CI 1.44 to 14.37, p<0.05), AGYW who reported that their partners provide financial support had 54% lower odds of low relationship power than AGYW who did not report financial support from their partners (POR=0.46; 95% CI 0.26 to 0.82, p=0.01). Lower education was also associated with higher odds of low relationship power (POR=1.96; 95% CI 1.36 to 2.83; p<0.001). In the multivariate model, lower education, more lifetime sexual partners, and unintended pregnancy remained significantly associated with higher odds of low relationship power. Furthermore, receiving FP counseling with a partner remained significantly associated with lower odds of low relationship power. In an analysis using the

RC factor subscale, we found similar results with the exception that household income and current modern contraceptive use were no longer associated with RC (Table 2b).

Support for FP:

Family and community support for FP were higher after first delivery than before (82% vs. 36%, p<0.0001; 67% vs. 32%, p<0.0001, respectively) (Figure 3). Similarly, AGYW with partners were more likely to report partner support for FP after first delivery than before (69% vs. 41%, p<0.0001). Partner support for FP after delivery was more common among AGYW who had partner support for FP prior to delivery (51%) than those who did not (22%) (POR= 1.26; 95% CI 1.01 to 1.62, p=0.05) (Table 3). Factors related to increased couple communication about FP were also associated with higher reported partner support for FP after delivery, including discussing FP with partner (POR=1.76; 95% CI 1.27 to 2.44, p<0.001), partner knowing about their FP (POR=2.41; 95% CI 1.53 to 3.80, p<0.001), and receiving FP counseling with partner (POR=1.32; 95% CI 1.02 to 1.70, p<0.001). Additionally, knowledge of the partner's HIV status (POR= 1.48, 95% CI: 1.02-2.15, p=0.04) was also associated with increased reported partner support for FP. We did not detect significant differences in reported partner support for FP by other partnership (marital status, living with partner, and age difference with partner) or partner (education, employment) characteristics. While partner support for FP was similar by overall relationship power, AGYW with low relationship control specifically had 22% lower odds of reported partner support for FP (POR=0.78; 95% CI 0.60 to 1.00; p=0.05). Pre-pregnancy partner support for FP and discussing FP with partner remained significantly associated with higher odds of reported partner support for FP after delivery in the multivariate model.

Family planning decision-making factors:

Nearly all AGYW in both age groups considered duration of coverage (97%) and return to fertility (97%) to be important factors in decision-making about FP after first birth, and 72% considered partner preference to be an important factor. Less than half (45%) of AGYW considered cost or ability to conceal methods (25%) to be important decision-making factors after first birth. Personal experience of side effects was considered important in making FP decisions by 31% of AGYW. Similarly 41% of AGYW reported side effects they had heard about were important and 38% said side effects that someone they knew had experienced (38%) were important considerations (Figure 4a). Overall, factors considered important in FP decision-making were similar by age group. However, experienced side effects were less frequently reported as an important decision-making factor among 14-18 year olds (24%) compared to 19-21 year olds (34%) (p=0.05). AGYW with partners were more likely to report partner preference as an important FP decision-making factor (75%) compared to those without partners, though over half of AGYW without partners reported partner preference as an important (65%) (Figure 3b). AGYW with partners were also more likely to consider cost, ability to conceal contraceptive, and side effects as important factors in decision-making about FP.

Discussion:

In our study, we found lower relationship power among AGYW who reported less communication with their partners about family planning and higher relationship power among those who used modern contraception in the postpartum period. We also found AGYW whose pregnancies were unintended were more likely to report less power in their relationships with male partners. These results concur with other studies that have found an association between low relationship power and lower likelihood to use modern contraception use in other settings in Africa (4,14). AGYW with low relationship power may not be able to negotiate with their partner about their fertility intentions or preferences. Additionally, women with more education in our study were less likely to report low relationship power, which has also been shown in other studies (17,23). Together, our findings suggest furthering educational opportunities and support for AGYW and improving couple communication about FP may be effective strategies to improve reproductive health outcomes for AGYW with low relationship power.

Partner, family, and community support for FP were common among AGYW after first birth, and AGYW were more likely to report social support for FP after their first birth. Our results support previous findings among Kenyan AGYW that social support for FP increases after first birth (5). Other studies conducted in Kenya, Ethiopia, Rwanda, and Tanzania have shown partner support is an important factor in FP use and lack of partner support may negatively influence women's ability to use FP (4,7–11). Partner support for FP was reported more often among AGYW who communicated with their partner about FP or received counseling about FP with their partner, which is consistent with other studies that find couple communication is an important predictor of FP use (8,11). Couple communication about FP may lead to increased partner support for FP. These results may provide insight into the utility of intervention strategies that encourage couple communication about FP, though it is possible that AGYW who are able to communicate with their partners about FP already have some degree of partner support for FP use.

Overall, we did not find differences in factors reported to be important in decision-making for FP by age. Nearly all AGYW considered duration of coverage and return to fertility to be important factors in FP decision-making, indicating that AGYW may benefit from including these topics in FP counseling and educational outreach. Partner preference is also considered to be important by the majority of all participants after first delivery, which aligns with existing research on the importance of partner support for FP use (7,9–11) and may be suggest a benefit to engaging partners of AGYW in FP interventions. It is important to note that even the decision-making factors considered important by the lowest proportion of AGYW, including those related to side effects, cost, and ability to conceal, were still ranked as "important" or "very important" by 25-45% of all AGYW and should be considered in planning FP education or intervention strategies. While differences in importance of decision-making factors were significant comparing before and after first pregnancy, a larger proportion considered all factors measured to be important after delivery compared to before. It's possible that this is because more AGYW were contraceptive users after delivery than before, so they were likely to consider these factors more after delivery. It is also possible that AGYW had better recall of their more recent FP decision-making processes.

Our analysis had several strengths. The cross-sectional design permitted expoloration of corerlates of partner support for FP and low relationship power. Research on reported partner support for FP and relationship power among AGYW is lacking. Available literature on relationship power among adolescents primarily focuses on HIV risk, intimate partner violence, and condomless sex, whereas our analysis finds significant relationships between relationship power and unintended pregnancy, couple communication about FP, and contraceptive use. Our study also had some limitations. Due to

the cross-sectional design, we cannot establish causality. Only postpartum AGYW who came to the health facility for 9 month postpartum visits were included in the study. Therefore, results may not be generalizable to other postpartum AGYW or AGYW who have never given birth. Furthermore, there may be recall bias about pre-pregnancy experiences since data was collected during the late postpartum period. Similarly, exposures that occurred prior to the first pregnancy may also be subject to recall bias, particularly among multigravida participants whose first pregnancy may have occurred up to 3 years prior to the study.

AGYW have high rates of unmet need for FP and are at increased risk of adverse pregnancy outcomes (1–3), making it especially important to understand that barriers that they face to seeking FP services. Understanding partner support for FP and relationship power has important implications for designing and implementing FP interventions for postpartum AGYW. Consequences of low relationship power may include HIV acquisition, intimate partner violence, sexual violence, and condomless sex (18–20). Interventions to help adolescents navigate power dynamics in relationships may help mitigate these risks and improve overall health. Addressing these needs during the postpartum period may be particularly appropriate due to high engagement in care during well-child care and infant immunizations. Additionally, these findings align with data suggesting that the postpartum period is an opportunity for FP interventions, as AGYW may be more receptive to FP when they have social support for FP use (28,29). Further research on relationship power in AGYWs' relationships, couple communication about FP, and partner support for FP is critical to develop and test interventions designed to meet these objectives.

Works Cited

1. Magadi M. Poor Pregnancy Outcomes among Adolescents in South Nyanza Region of Kenya. Afr J Reprod Health [Internet]. 2006;10(1):26–38. Available from: https://www.jstor.org/stable/30032441
2. Darroch JE, Woog V, Bankole A, Ashford LS. Adding it up : Costs and Benefits of Meeting the Contraceptive Needs of Adolescents [Internet]. New York; 2016. Available from: https://www.popline.org/node/649435
3. Smith R, Mehta S. Kenya- Reproductive Transitions: Unmet Need for Family Planning [Internet]. 2014. Available from: https://www.prb.org/wp-content/uploads/2014/07/kenya-unmet-need-contraception.pdf
4. Ketema H, Erulkar A. Married Adolescents and Family Planning in Rural Ethiopia : Understanding Barriers and Opportunities. Afr J Reprod Health. 2018;22(4):26–34.
5. Velonjara J, Crouthamel B, Malley GO, Wiggins M, Matemo D, John-stewart G, et al. Sexual & Reproductive Healthcare Motherhood increases support for family planning among Kenyan adolescents. Sex Reprod Healthc [Internet]. 2018;16:124–31. Available from: https://doi.org/10.1016/j.srhc.2018.03.002
6. Wood K, Jewkes R. Blood Blockages and Scolding Nurses: Barriers to Adolescent Contraceptive Use in South Africa. Reprod Health Matters. 2006;14(27):109–18.
7. Ochako R, Mbondo M, Aloo S, Kaimenyi S, Thompson R, Temmerman M, et al. Barriers to modern contraceptive methods uptake among young women in Kenya: a qualitative study. BMC Public Health [Internet]. 2015;15(118):1–9. Available from: https://doi.org/10.1186/s12889-015-1483-1
8. Brunie A, Tolley EE, Ngabo F, Wesson J, Chen M. Getting to 70%: Barriers to modern contraceptive use for women in Rwanda. Int J Gynecol Obstet. 2013;123:11–5.
9. Withers M, Dworkin SL, Zakaras JM, Onono M. Women now wear trousers': men's perceptions of family planning in the context of changing gender relations in western Kenya. Cult Health Sex. 2015;17(9):1132–46.
10. Mosha I, Ruben R, Kakoko D. Family planning decisions, perceptions and gender dynamics among couples in Mwanza, Tanzania: a qualitative study. BMC Public Health. 2013;13(523).
11. Kimuna SR, Adamchack DJ. Gender relations: Husband-wife fertility and family planning decisions in Kenya. J Biosoc Sci. 2001;33:13–23.
12. Harrington EK, Dworkin S, Withers M, Onono M. Gendered power dynamics and women ' s negotiation of family planning in a high HIV prevalence setting : a qualitative study of couples in western Kenya. Cult Health Sex. 2016;18(4):453–69.
13. Farmer DB, Berman L, Ryan G, Habumugisha L, Basinga P, Nutt C, et al. Motivations and Constraints to Family Planning : A Qualitative Study in Rwanda ' s Southern Kayonza District. 2020;3(2):242–54.
14. Alsumri HH. Review of Quality of Care A National Study : the Effect of Egyptian Married Women ' s Decision-Making Autonomy on the use of Modern Family Planning Methods. 2015;19(December):68–77.
15. Gage AJ, Gage AJ. Sexual Activity and Contraceptive Use : The Components of the Decisionmaking Process. 1998;29(2):154–66.
16. Chandra-mouli V, Parameshwar PS, Parry M, Lane C, Hainsworth G, Wong S, et al. A never-before opportunity to strengthen investment and action on adolescent contraception , and what we must do to make full use of it. Reprod Health [Internet]. 2017;14(85):1–13. Available from: https://doi.org/10.1186/s12978-017-0347-9
17. Pulerwitz J, Gortmaker SL, Dejong W. Measuring Sexual Relationship Power in HIV / STD

Research. Sex Roles [Internet]. 2000;42(7–8):637–60. Available from: https://link.springer.com/article/10.1023/A:1007051506972
18. Conroy AA, Tsai AC, Clark GM, Boum Y, Hatcher AM, Kawuma A, et al. Relationship Power and Sexual Violence Among HIV-Positive Women in Rural Uganda. AIDS Behav. 2016;20(9):2045–53.
19. Muldoon K, Deering K, Feng C, Shoveller J, Shannon K. Sexual relationship power and intimate partner violence among sex workers with non-commercial intimate partners in a Canadian setting. AIDS Care. 2015;27(4):512–9.
20. Pulerwitz J, Mathur S, Woznica D. How empowered are girls / young women in their sexual relationships ? Relationship power , HIV risk , and partner violence in Kenya. PLoS One [Internet]. 2018;1–14. Available from: http://dx.doi.org/10.1371/journal.pone.0199733
21. Siedner MJ, St F, Hunt PW, St F. NIH Public Access. 2013;16(6):1542–8.
22. Matsuda Y, McGrath J, Jallo N. Use of the Sexual Relationship Power Scale in Research : An Integrative Review. Hisp Heal Care Int. 2012;10(4).
23. Mcmahon JM, Volpe EM, Klostermann K, Trabold N, Xue Y. A Systematic Review of the Psychometric Properties of the Sexual Relationship Power Scale in HIV / AIDS Research. Arch Sex Behav. 2015;44:267–94.
24. Gallo MF, Legardy-Williams J, Steiner M, Macaluso M, Carter M, Hobbs M, et al. Sexual Relationship Power and Semen Exposure Among Female Patients at a Sexually Transmitted Infection Clinic in Kingston , Jamaica. Arch Sex Behav. 2017;46(7):2157–64.
25. Festin M, Kiarie J, Solo J, Spieler J, Malarcher S, Van Look PFA, et al. Moving towards the goals of FP2020 — classifying contraceptives ☆. Contraception [Internet]. 2016;94(4):289–94. Available from: http://dx.doi.org/10.1016/j.contraception.2016.05.015
26. Blanc AK. The Effect of Power in Sexual Relationships on Sexual and Reproductive Health: An Examination of the Evidence. Stud Fam Plann. 2001;32(3):189–213.
27. Breslow NE. Generalized Linear Models : Checking Assumptions and Strengthening Conclusions [Internet]. 1996. Available from: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.50.6105&rep=rep1&type=pdf
28. Achwoka D, Pintye J, Mcgrath CJ, Kinuthia J, Unger JA, Obudho N, et al. Uptake and correlates of contraception among postpartum women in Kenya : results from a national cross-sectional survey. Contraception [Internet]. 2018;97(3):227–35. Available from: https://doi.org/10.1016/j.contraception.2017.10.001
29. Cleland J, Shah IH, Daniele M. Interventions to improve pospartum family planning in low- and middle-income countries: Program implications and research priorities. Stud Fam Plann. 2015;46(4):423–41.

Table 1. Characteristics of postpartum adolescent girls and young women in Kenya

	Median (IQR) or n (%)					
	All participants (n=498)		No partner (n=144)		Has partner (n= 353)	
	Total		Total		Total	
Demographics						
Age 14-18 years (vs 19-21 years)	498	158 (32)	144	81 (56)	353	76 (22)
Age of sexual debut ≤14 years	497	117 (24)	144	34 (24)	353	83 (24)
< 9 years education completed	492	157 (32)	144	44 (31)	348	113 (32)
Currently enrolled in school	491	120 (24)	144	65 (45)	347	55 (16)
Orphan (1 or both parents deceased)	492	194 (39)	142	33 (23)	350	161 (46)
Household income (USD/month)	188	79 (49-197)	23	59 (20-118)	165	79 (49-197)
Has had household income for last 3 months	393	319 (81)	80	48 (60)	313	271 (87)
Primigravida	497	349 (70)	144	127 (88)	353	222 (63)
HIV status	497		144		353	
Positive		53 (11)		10 (7)		43 (12)
Negative		439 (88)		129 (90)		310 (88)
Unknown		5 (1)		5 (3)		0 (0)
# Lifetime sexual partners >2	497	137 (26)	144	26 (18)	353	111 (31)
Partner/partnership characteristics						
Married	498	254 (51)	144	1 (1)	353	253 (72)
Monogamous relationship		-		-	342	334 (98)
Partner age difference ≥5 years		-		-	353	245 (69)
Partner completed secondary education		-		-	333	214 (64)
Partner employed		-		-	352	285 (81)
Partner provides financial support		-		-	349	329 (94)
Relationship duration ≥1 year		-		-	352	320 (91)
Lives with partner		-		-	352	250 (71)
Partner HIV status		-		-	352	
Positive		-		-		29 (8)
Negative		-		-		266 (76)
Unknown		-		-		57 (16)
Contraceptive use						
Does not want pregnancy in next 2 years	497	376 (76)	144	101 (70)	353	275 (78)
Most recent pregnancy was unintended	496	178 (36)	144	53 (37)	352	125 (36)
Current modern contraceptive user*	494	278 (56)	143	30 (21)	342	248 (71)
Modern contraceptive user* prior to most recent pregnancy	483	169 (35)	137	54 (39)	346	115 (33)
Ever used condom	497	378 (76)	144	84 (58)	353	294 (83)
Discussed FP with partner		-		-	349	261 (75)
Partner knows about FP use		-		-	319	265 (83)
Has received FP counseling with partner		-		-	345	85 (25)

*Modern contraception includes oral contraceptive pills, injectables, implants, intrauterine devices, bilateral tubal ligation, vasectomy/male sterilization, male condoms, standard days method (periodic abstinence), or emergency contraception. IQR, interquartile range; FP, family planning.

Table 2a: Correlates of low relationship power* among adolescent girls and young women (age 14-21) with male partners on the Sexual Relationship Power Scale

	Crude			Adjusted†		
	POR	95% CI	p-value	POR	95% CI	p-value
Age 14-18 years (vs 19-21 years)	1.10	0.71-1.68	0.68			.
Age of sexual debut ≤14 years	1.44	0.98-2.14	0.07			
< 9 years education completed	1.96	1.36-2.83	**<0.001**	1.63	1.10-2.41	**0.02**
Currently enrolled in school	0.82	0.48-1.41	0.47			
Orphan (1 or both parents deceased)	1.17	0.82-1.68	0.38			
Household has had income for last 3 months	4.55	1.44-14.37	**0.01**[a]			
Primigravida	0.81	0.56-1.16	0.25			
# Lifetime sexual partners >2	1.62	1.12-2.33	**0.01**	1.52	1.03-2.24	**0.04**
HIV-infected	1.21	0.72-2.02	0.47			
Knows partner's HIV status	0.61	0.40-0.93	**0.02**	0.78	0.49-1.23	0.28
Married	1.01	0.67-1.51	0.97			
Partner age difference ≥5 years	0.73	0.51-1.07	0.11			
Partner completed secondary education	0.88	0.60-1.29	0.51			
Partner employed	0.92	0.59-1.44	0.72			
Partner provides financial support	0.46	0.26-0.82	**0.01**[b]			
Relationship duration ≥1 year	0.74	0.43-1.30	0.30			
Lives with partner	1.01	0.68-1.50	0.97			
Current modern contraceptive** user	0.55	0.38-0.79	**0.001**	0.73	0.48-1.09	0.13
Modern contraceptive user** prior to most recent pregnancy	2.39	1.66-3.44	**<0.001**[c]			
Most recent pregnancy was unintended	2.58	1.79-3.72	**<0.001**	2.34	1.56-3.49	**<0.001**
Ever used condom	0.83	0.53-1.31	0.43			
Discussed FP with partner	0.49	0.34-0.72	**<0.001**	0.81	0.52-1.24	0.33
Partner knows about FP use	0.34	0.23-0.51	**<0.001**[d]			
Has received FP counseling with partner	0.23	0.11-0.46	**<0.001**	0.41	0.19-0.87	**0.02**

Prevalence odds ratio (POR); confidence interval (CI); family planning (FP). *Relationship power is calculated using the Sexual Relationship Power Scale (SRPS). Low relationship power is classified as a score <2.05. ** Modern contraception includes oral contraceptive pills, injectables, implants, intrauterine devices, bilateral tubal ligation, vasectomy/male sterilization, male condoms, standard days method (periodic abstinence), or emergency contraception. †Adjusted for age, education, # lifetime sexual partners, knows partners HIV status, current modern contraceptive user, unintended pregnancy, discussed FP with partner, and has received FP counseling with partner. Variables excluded from the multivariate model due to collinearity: a. Household has had income for the last three months was collinear with education. b Partner provides financial support was collinear with discussing FP with partner, c. Modern contraceptive use prior to most recent pregnancy was collinear with unintended pregnancy, d. Partner knows about FP use was collinear with having discussed FP with partner and with having received FP counseling with partner.

Table2b: Correlates of low relationship power* among adolescent girls and young women (age 14-21) with male partners on the Sexual Relationship Power Scale Relationship Control Factor Subscale

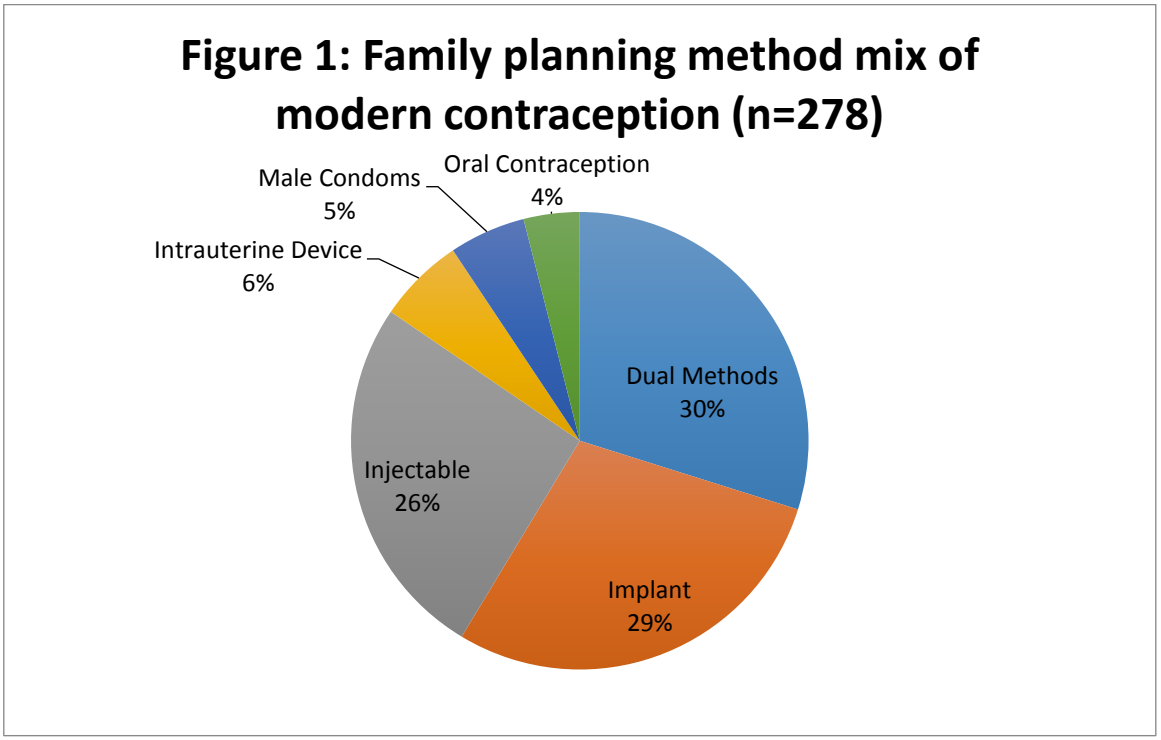
	Crude			Adjusted†		
	POR	95% CI	p-value	POR	95% CI	p-value
Age 14-18 years (vs 19-21 years)	1.23	0.82-1.85	0.32			
Age of sexual debut ≤14 years	1.69	1.16-2.45	**0.006**[a]			
< 9 years education completed	2.10	1.47-3.01	**<0.001**	1.59	1.04-2.45	**0.03**
Currently enrolled in school	0.66	0.37-1.17	0.15			
Orphan (1 or both parents deceased)	1.55	1.09-2.23	**0.02**	1.38	0.94-2.04	0.10
Household has had income for last 3 months	1.18	0.64-2.15	0.60			
Primigravida	0.70	0.49-0.99	**0.05**	0.64	0.41-1.00	**0.05**
# Lifetime sexual partners >2	1.59	1.11-2.27	**0.011**	1.37	0.93-2.02	0.11
HIV-infected	1.30	0.80-2.12	0.29			
Knows partner's HIV status	0.62	0.41-0.93	**0.02**[b]			
Married	1.55	1.00-2.40	**0.05**[c]			
Partner age difference ≥5 years	0.95	0.65-1.39	0.80			
Partner completed secondary education	0.61	0.42-0.89	**0.01**	0.81	0.52-.1.24	0.32
Partner employed	1.22	0.76-1.97	0.41			
Partner provides financial support	0.73	0.37-1.44	0.37			
Relationship duration ≥1 year	0.78	0.45-1.37	0.40			
Lives with partner	1.40	0.92-2.13	0.12			
Current modern contraceptive** user	0.74	0.51-1.07	0.11			
Modern contraceptive user** prior to most recent pregnancy	1.73	1.22-2.47	**0.002**[d]			
Most recent pregnancy was unintended	2.60	1.79-3.72	**<0.001**	2.03	1.33-3.11	**0.001**
Ever used condom	0.80	0.51-1.24	0.31			
Discussed FP with partner	0.58	0.41-0.84	**0.004**	0.66	0.43-1.00	**0.05**
Partner knows about FP use	0.36	0.25-0.52	**<0.001**[e]			
Has received FP counseling with partner	0.33	0.18-0.61	**0.000**	0.46	0.23-0.95	**0.04**

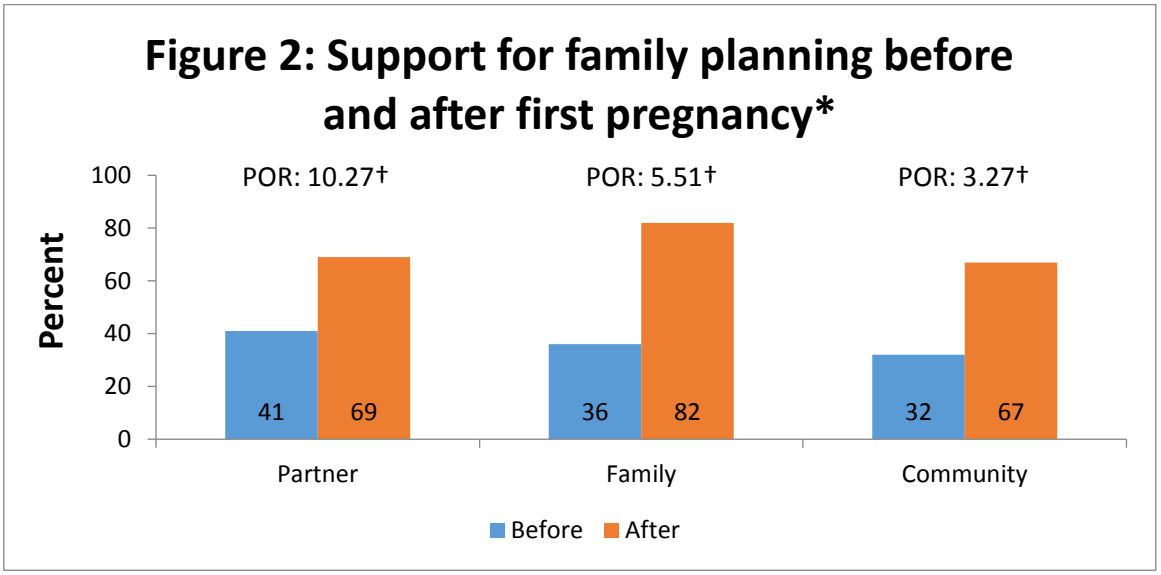
Prevalence odds ratio (POR); confidence interval (CI); family planning (FP). *Relationship power is calculated using the Sexual Relationship Power Scale (SRPS). Low relationship power is classified as a score <2.05. ** Modern contraception includes oral contraceptive pills, injectables, implants, intrauterine devices, bilateral tubal ligation, vasectomy/male sterilization, male condoms, standard days method (periodic abstinence), or emergency contraception. †Adjusted for age, education, orphanhood, gravidity, partner education, # lifetime sexual partners, unintended pregnancy, discussed FP with partner, and has received FP counseling with partner. Variables excluded from the multivariate model due to collinearity: a. Age of sexual debut was collinear with education, b. Knows partners HIV status was collinear with receiving FP counseling with partner, c. Married was collinear with age, d. Modern contraceptive user prior to most recent pregnancy was collinear with unintended pregnancy, e. Partner knows about FP use was collinear with having discussed FP with partner and having received FP counseling with partner.

Table 3: Correlates of partner support for FP after delivery among postpartum adolescent girls and young women (age 14-21) with male partners

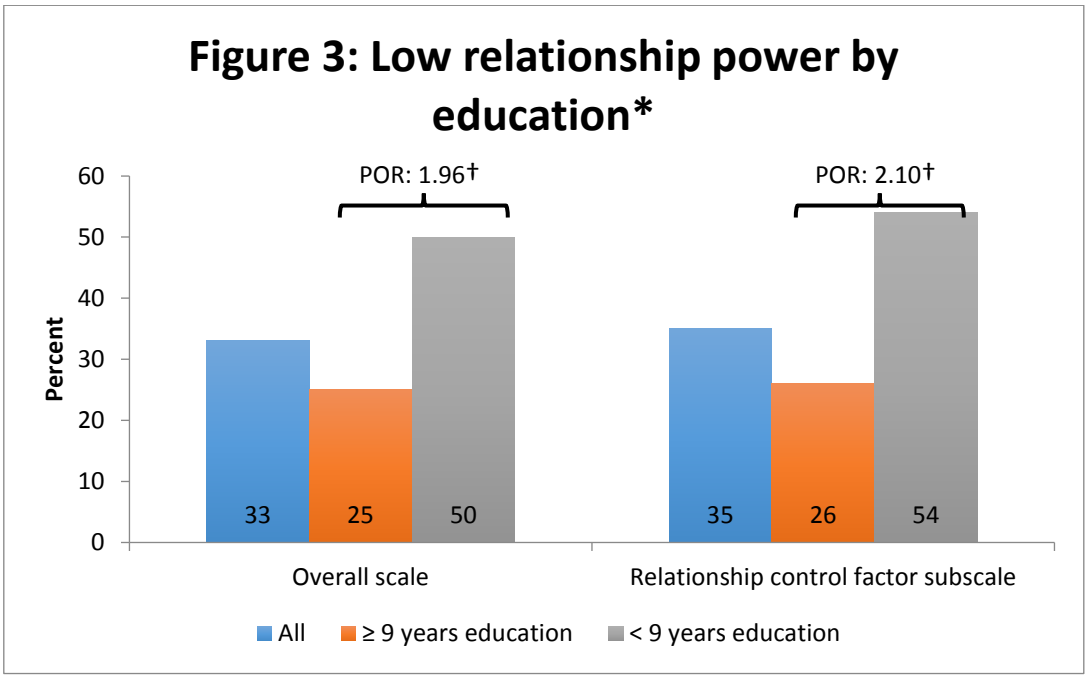
	Crude			Adjusted†		
	POR	95% CI	p-value	POR	95% CI	p-value
Age 14-18 years (vs 19-21 years)	0.84	0.62-1.14	0.26			
< 9 years education completed	0.91	0.71-1.18	0.47			
Currently enrolled in school	1.05	0.72-1.40	0.98			
Orphan (1 or both parents deceased)	0.96	075-1.21	0.72			
Household has had income for last 3 months	1.07	0.74-1.55	0.72			
Primigravida	0.97	0.76-1.23	0.79			
# Lifetime sexual partners >2	1.02	0.79-1.32	0.86			
Married	1.22	0.92-1.61	0.16			
Partner age difference ≥5 years	1.06	0.82-1.37	0.67			
Partner completed secondary education	1.06	0.82-1.37	0.65			
Partner employed	1.15	0.84-1.58	0.39			
Partner provides financial support	2.10	0.99-4.44	**0.05**[a]			
Relationship duration ≥ year	1.13	0.73-1.75	0.59			
Lives with partner	1.25	0.95-1.64	0.12			
Low relationship power*						
Overall scale	0.87	0.67-1.12	0.28			
Relationship control factor subscale	0.78	0.60-1.00	**0.05**	0.84	0.64-1.10	0.21
Does not want pregnancy in next 2 years	0.99	0.74-1.32	0.96			
Modern contraceptive user** prior to most recent pregnancy	.97	0.76-1.26	0.84			
Current modern FP user	1.55	1.16-2.07	0.003			
Pre-pregnancy partner support for FP	1.26	1.01-1.62	**0.05**	1.26	1.00-1.61	**0.05**
Most recent pregnancy was unintended	0.90	0.70-1.15	0.41			
Discussed FP with partner	1.76	1.27-2.44	**0.001**	1.62	1.15-2.28	**0.01**
Partner knows about FP use	2.41	1.53-3.80	**<0.001**[b]			
Has received FP counseling with partner	1.32	1.02-1.70	**0.04**	1.07	0.81-.1.42	0.60
Knows partner's HIV status	1.48	1.02-2.15	**0.04**[c]			

Prevalence odds ratio (POR); confidence interval (CI); family planning (FP). *Relationship power is calculated using the Sexual Relationship Power Scale (SRPS). Low relationship power is classified as a score <2.05. ** Modern contraception includes oral contraceptive pills, injectables, implants, intrauterine devices, bilateral tubal ligation, vasectomy/male sterilization, male condoms, standard days method (periodic abstinence), or emergency contraception. †Adjusted for age, pre-pregnancy partner support for FP, low relationship power on the relationship control factor subscale, discussed FP with partner, and has received FP counseling with partner. Variables excluded from multivariate model due to collinearity: a. Partner provides financial support was collinear with discussing FP with partner, b. Partner knows about FP use was collinear with having discussed FP use with partner, c. Knowing partner's HIV status was collinear with having received FP counseling with partner.

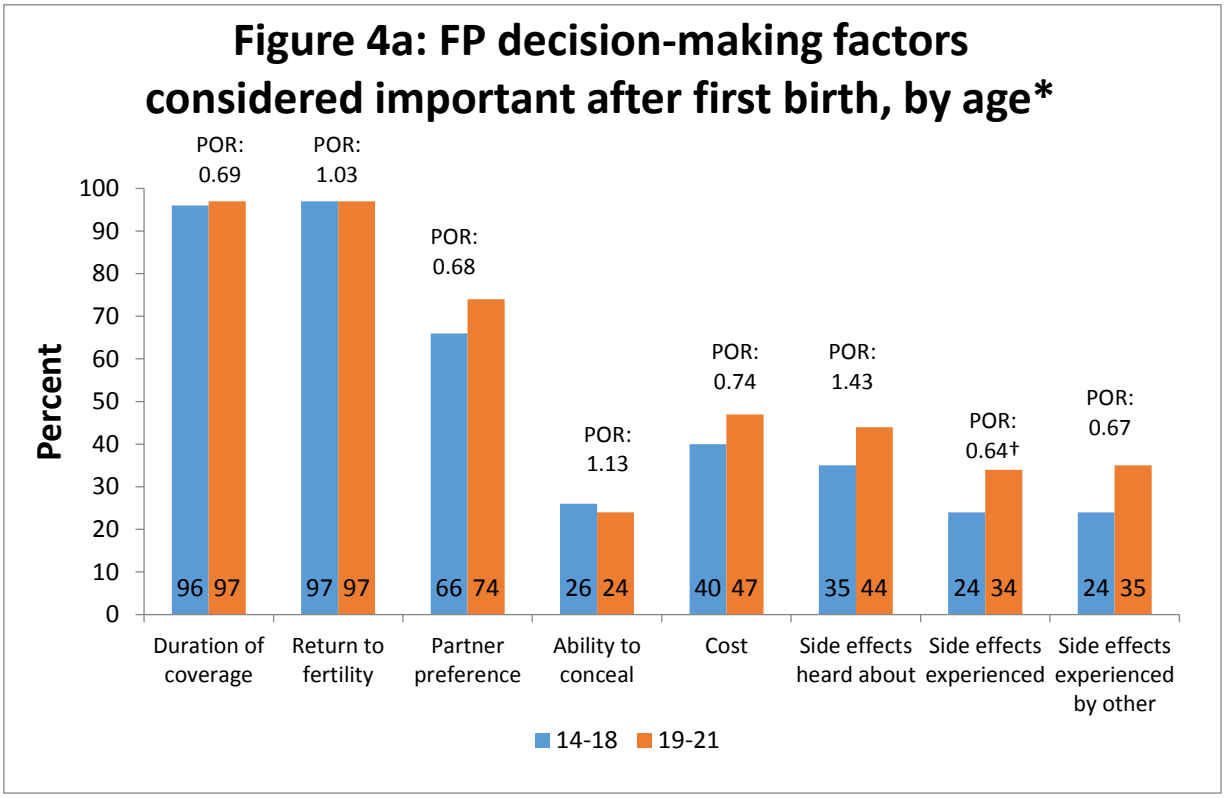


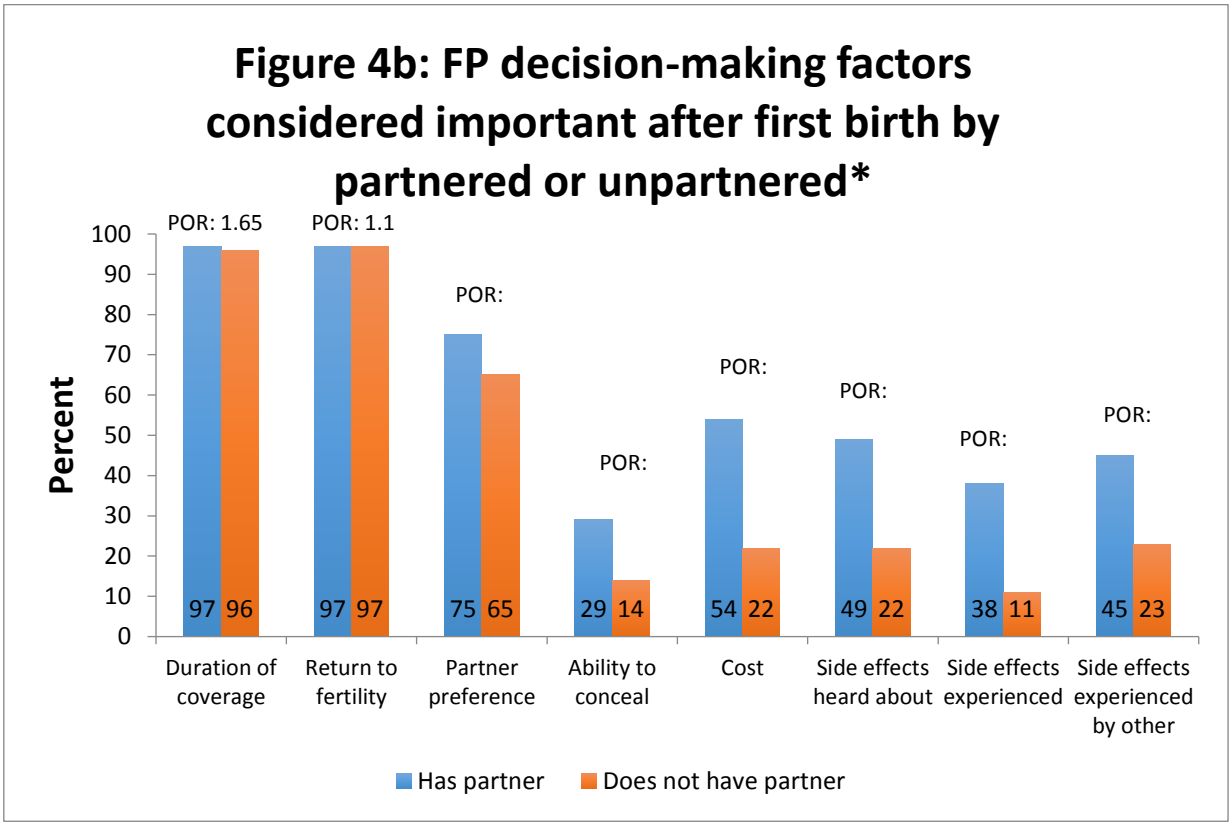


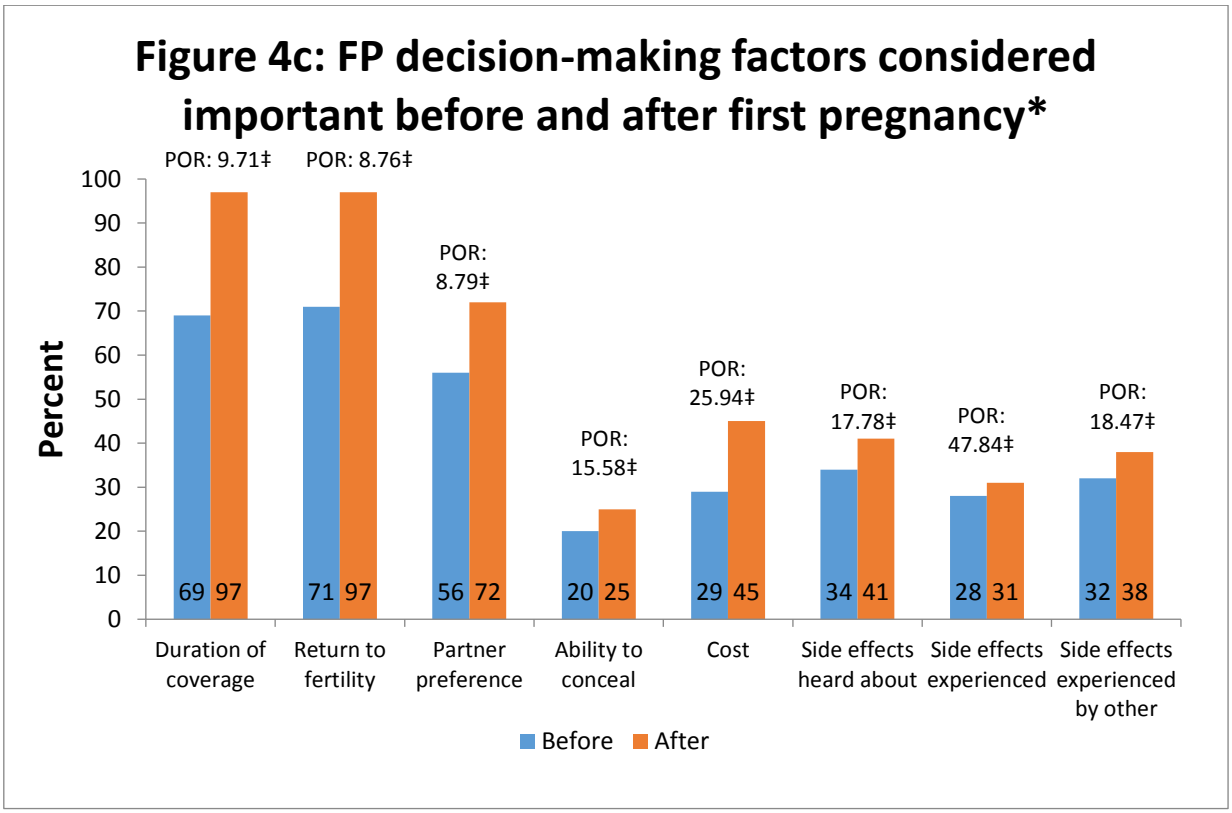
Prevalence odds ratio (POR). * Considered supportive if the participant responded "somewhat" or "very" supportive when asked about support for family planning before and after first pregnancy. † $p<0.0001$



Prevalence odds ratio (POR) comparing AGYW with ≥ 9 years of education to those with < 9 years of education. *Relationship power is calculated using the Sexual Relationship Power Scale (SRPS). Low relationship power is classified as a score <2.05. † p<0.001







Prevalence odds ratio (POR). * Factors were considered important if participant reported factor was "somewhat" or "very" important. † p≤0.05, ‡<0.001