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Effect of Parental Dialogues on the Uptake of Postpartum Family Planning Methods among first-time adolescent Mothers in South Central Uganda

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ABSTRACT

Background: *Postpartum family planning (PPFP) promotes safe motherhood by preventing unplanned repeat pregnancies and making sure there is enough time between pregnancies. However, there is a limited amount of information on how parental dialogue affects the number of adolescent mothers who use PPFP. The point of this study was to find out how parental dialogues affected the use of PPFP among first-time adolescent mothers in the South Central area of Uganda.*

Methods: *A community-based cross-sectional study was carried out between 2021 and 2023 in two sub-counties of Rakai District in the South Central region of Uganda. We extracted and analyzed a dataset of adolescent first-time mothers aged 10-19 who were permanent residents, had a baby under 2 years old at the time of parental dialogue. Chi-square or Fisher's exact for categorical data and t-tests for numerical data at 5% significance were used to examine differences between first-time mothers' utilization of PPFP after attending parental dialogues. Bivariate and multivariable analyses were performed to identify the effect of parental dialogues on PPFP uptake and predictors for PPFP uptake.*

Results: *Of the 293 Adolescent first-time mothers, 219 (74.4%) were cohabiting/in-union, 201 (57.9%) attended post-primary education, 189 (64.5%) attended parental dialogues well, and 248 (84.6%) had never used any family planning, and 256 (87.37%) individuals attended all four PNC visits. Implant 3 years and Injectables had 45 (18.9%) users, followed by Implant 5 years with 30 (12.6%) postpartum users. 48.8% of cohabiting/in-union adolescent mothers used PPFPs. Adolescent first-time mothers who attended at least one parental dialogue were 2.6 and 2.7 times more likely to use injectable and 5-year implants in the postpartum period respectively. Early middle adolescent first-time mothers were 2.5 times more likely to use PPFM. Adolescent first-time mothers who cohabitated/were in a union were 4.4 times more likely to use PPFP.*

Conclusion: *Parental discussions enhance the probability of early adolescent first-time mothers in a union relationship to use a postpartum family planning method, with the 5-year implant and injectables being three times more preferred than other methods…… recommendation.*

Keywords

Postpartum Family planning, Adolescents, First-time mothers, Postpartum, Uganda.

Introduction

Postpartum family planning (PPFP) is the prevention of unintended pregnancy and closely spaced pregnancies through the first 12 months following childbirth [1].

Globally, an estimated 222 million women of reproductive age in Low- and Middle-Income Countries (LMICs) have an unmet need for family planning following childbirth. The postpartum period presents a critical time for intervention despite the availability of effective family planning methods leading to unintended

pregnancies and adverse health outcomes [2]. Similarly, 95% of women who are in the first 12 months of postpartum want to avoid pregnancy in the next 24 months, but only 30% have accessed and used a family planning method.

Sub-Saharan Africa is characterized by high fertility rates with many women giving birth to five or more children over their reproductive lifespan. Despite the high fertility rates of more than five children per mother in Sub-Saharan Africa (SSA), contraceptive use remains low, particularly among postpartum women. The unmet need for family planning among postpartum women in SSA is estimated to be around 65%, reflecting significant barriers to access, including cultural norms, lack of awareness, and limited availability of services [3]. Low uptake of postpartum family planning is associated with a range of adverse outcomes, including closely spaced pregnancies, which increase the risk of maternal and infant mortality. Closely spaced pregnancies contribute to preterm births and low birth weight, which are major contributors to neonatal morbidity and mortality [3]. In adolescent mothers, the associated factors are stigma, lack of decision-making autonomy, and inadequate health education. Research has reported that these young mothers are at a higher risk of rapid repeat pregnancies, which can have serious health consequences for both the mother and child [5].

Uganda has one of the highest adolescent pregnancy rates globally, with nearly a quarter of girls aged 15-19 either pregnant or already a mother [4].

In Uganda, the uptake of postpartum family planning is hindered by a variety of barriers, including cultural resistance to contraceptive use, especially among young mothers, inadequate health system infrastructure, and limited access to services. Adolescent mothers are particularly affected by these barriers, often facing stigma and lack of support from both their families and healthcare providers, which further exacerbates the unmet need for PPFP [5].

While efforts by the Ugandan government and Non-governmental organizations (NGOs) to improve access to family planning services have seen some progress, there is still a need to support rural and adolescent populations. Programs to increase awareness and availability of PPFP services must be intensified to address these gaps and improve maternal and child health outcomes. Improving the health of adolescents requires information on age-appropriate comprehensive sexual education and the availability of health services. We implemented parental dialogues using a seven-session curriculum to improve the sexual and reproductive health of adolescent mothers. This study therefore evaluated the effect of parental dialogues on the uptake of postpartum family planning among first-time adolescent mothers in South Central Uganda.

Methods and Materials

Study Design

This was a community-based cross-sectional study carried out between 2021 and 2023 in two sub-counties of Rakai District in the South Central region of Uganda.

Study Setting

The study was conducted in Rakai District, located in the South Central region of Uganda. Rakai District is approximately 190km southwest of Kampala, the capital city of Uganda, accessible via the Masaka-Mutukula highway. These sub-counties were selected due to their high rates of adolescent pregnancies, low PPFP uptake, and the presence of community-based dialogue interventions aimed at improving reproductive health outcomes.

Study Population

Our study focused on adolescent first-time mothers between the ages of 10 and 19 years, who were permanent residents and had a baby under 2 months old when they took part in the parental dialogue.

Data Collection

Data was collected through structured questionnaires administered to a representative sample of adolescent first-time mothers. The survey included questions on their demographic characteristics, postpartum family planning methods, and the number of parental dialogue sessions they had attended. Data was collected at multiple time points (e.g., during pregnancy, immediately postpartum, 6 months postpartum) to assess changes in family planning practices and the influence of parental dialogues over time.

Variables and Measurements

Dependent variable

The primary outcome variable was the uptake of postpartum family planning, defined as the use of any family planning method following 12 months after childbirth. The outcome variable of interest in this study is the use of family planning methods (modern methods) in the postpartum period among adolescent first-time mothers aged 10 to 19 years.

Independent Variable

Independent variables of interest included age, education level, marital status, socio-economic status, and access to healthcare services.

Exposure offset

Based on the expectation that the level of parental exposure, specifically the number of sessions an adolescent mother attends, will influence her decision to uptake a PPFM, we included parental dialogue as an exposure offset for the log-link GLM. A seven-session dialogue between adolescent first-time mothers and their parents focuses on raising awareness about the importance of healthy timing and spacing of pregnancies. This was achieved through recommended family planning methods during the postpartum period.

Data management and Analysis plan

Data was extracted from the PostgreSQL database into STATA version 14, cleaned, transformed to populate cells with values, and re-coded. Where appropriate, Chi-square or Fisher's exact for categorical data and t-tests for numerical data were used to examine differences between first-time mothers' utilization of PPFP and

those who did not utilize PPFP after attending parental dialogues. Chi-square or Fisher's exact test was employed to determine the correlation between PPFP and independent variables. Finally, univariable, bivariable, and multivariable analyses were performed to determine whether and how PPFP uptake changed over time and any changes related to changing social and health factors. We used the univariable to summarize the socio-demographic factors to find the pattern within the dataset. Data were tested and transformed to ensure normality was obtained.

The generalized linear regression model employing the exposure estimation option, was used to identify associations between postpartum outcomes (i.e., uptake of postpartum family planning methods) against independent variables. Our exposure (parental dialogues) estimation option helps to specify a variable that reflects the amount of exposure (i.e., number of parental dialogues) over which our dependent variable (i.e., uptake of postpartum family planning methods) events were observed for each observation. Assuming that the employed link was not the canonical link for the binomial family, we utilized the VCE (OIM) option to obtain equivalent standard errors in our models.

Bivariate analysis was conducted to understand the relationship between two or more variables and control for confounding factors. The associations between the outcome and independent variables were measured using the odds ratio (OR) with a 95% confidence interval (CI) calculated. All variables that showed a significant association of $p<0.3$ at the bivariable level were further analyzed at the multivariable level. The adjusted odds ratio (aOR) was undertaken using a simultaneous modeling technique to determine the presence of associations between the outcome and independent variables. Model fitness was performed using the Hosmer and Lemeshow Chi-Square test at $p>0.05$.

Results

Participant characteristics

Among the 293 postpartum mothers assessed, 219 (74.4%) were cohabiting/in-union, 81.2% (238) were first-time mothers, 201 (57.9%) attended post-primary education, 189 (64.5%) had good attendance for parental dialogues and 248 (84.6%) had never used a family planning method.

The pattern of PNC visits among participants involved in parental dialogues showed that 5 (1.71%) never attended any PNC visits, and 7 (2.39%) attended either the 24hrs [6] or 6weeks [1] PNC visits. A total of 12 participants attended at least two visits with 11 (3.75%) attending both 24 hours and 6 days and one person attending both the 24 hours and 6 weeks PNC visits. 13 (4.44%) participants attended the 24 hours, 6 days, and 6 weeks PNC visits. 256 (87.37%) participants attended all four PNC visits i.e., at 24 hours, 6 days, 6 weeks, and 6 months

Table 1: Characteristics of 293 Participants Characteristics of first-time adolescent mothers in community parental dialogues in South Central Uganda.

Characteristics	Number (%)
Maternal age group	
Early/mid (10-17)	60 (20.48)
Late (18-19)	233 **(79.52)**
Marital Status	
Single	74 (25.26)
Cohabiting/in-union	219 **(74.74)**
Type-of-parent	
First-time	238 **(81.23)**
Not-First-time	55 (18.77)
Completion of Primary Education	
Completed	201 **(68.60)**
Primary	92 (31.4)
Employment status	
Not-employed	157 **(53.58)**
Employed	136 (46.42)
Religious Affiliation	
Anglican	88 (30.03)
Catholic	124 **(42.32)**
Moslem	28 (9.56)
Pentecostal	49 (16.72)
Others	4 (1.37)
Gestation Status	
Pregnant	164 **(55.97)**
Postpartum	129 (44.03)
Family Planning Uptake	
Not-using	113 (38.57)
Using	180 **(61.43)**
History of FP-usage	
Never	248 **(84.64)**
Used	45 (15.36)
Attending School	
Not	276 **(94.20)**
In-school	17 (5.8)
Session Attendance	
Poor Attendance	104 (35.49)
Good Attendance	189 **(64.51)**
Postpartum FP Methods	
None	**105 (44.12)**
Implant 3 years	45 (18.91)
Implant 5 years	30 (12.61)
Injectables	45 (18.91)
IUDs	4 (1.68)
Other methods	9 (3.78)

Bivariate analysis of PPFP

A total of 85.5% of first-time mothers who have taken PPFP had ever used a method before pregnancy. The most frequently used method was Implant 3 years and Injectables both having 45 (18.9%) users and followed up by Implant 5 years with 30 (12.6%) utilization during the postpartum period (Data not showed). The analysis shows no differences in PPFP uptake and the stage of the adolescent, completion of primary level education, employment

status, religious affiliation, whether the adolescent was still in school, baseline FP method use, and gestation age at enrolment. Our study shows that 48.8% of cohabiting/in-union adolescent mothers took up a PPFP is In line with the Ugandan Ministry of Health plans for increasing the modern Contraceptive Prevalence Rate (mCPR) for cohabiting/in-union women from 38.7% in 2020 to 46.6% in 2024.

Factors and Effect of Parental Dialogue on Uptake Postpartum Family Planning Methods (PPFP)

In the adjusted multivariable analysis, early-stage adolescence, in-union, use of injectables, and 5-year implant were significantly associated with the uptake of PPFP among adolescent first-time mothers in the two sub-counties of Rakai. Our findings indicate that adolescent first-time mothers who attended at least one dialogue were 2.6 and 2.7 times more likely to uptake an injectable and 5-year implant respectively. We also observed that Early Adolescent first-time mothers were 2.5 times more likely to uptake PPFM compared to their late-stage adolescent first-time mothers. Cohabiting/in-union adolescent first-time mothers were 4.4 times more likely to uptake a PFP method.

Discussion

We set out to establish the effect of parental dialogues on the uptake of postpartum family planning methods among adolescent first-time mothers who were pregnant and/or whose babies were less than one month but had attended at least one parental dialogue in the two sub-counties of Rakai district in the South Central Region of Uganda. Our study reports a 38.6% uptake of postpartum Family Planning (PPFP) methods among adolescent first-time mothers who attended parental dialogues in the two sub-counties of Rakai District. Injectables (18.9%), 3-year Implants (18.9%), and 5-year implants (12.6%) were the most commonly used family planning methods in the postpartum period by our adolescent first-time mothers. Participation in parental dialogues significantly affected

Table 2: Univariate analysis of participants' characteristics of first-time adolescent mothers in community parental dialogues in South Central Uganda.

	Uptake of Postpartum Family Planning Method (PPFP)		
Characteristics	**No n (%)**	**Yes n (%)**	**P-value**
Adolescence Staging			0.325
Early	18 (19.35)	36 (24.83)	
Late	75 (80.65)	109 (75.17)	
Marital Status			<0.0001
Single	35 (37.63)	24 (16.55)	
Cohabiting/in-union	58 (62.37)	121 (83.45)	
Session Attendance			0.001
Poor Attendance	42 (45.16)	35 (24.14)	
Good Attendance	51 (54.84)	110 (75.86)	
Completed Primary education			0.496
Completed	62 (66.67)	98 (67.59)	
Never Completed	31 (33.33)	47 (32.41)	
Employment Status			0.293
Not employed	51 (54.84)	73 (50.34)	
Employed	42 (45.16)	72 (49.66)	
Religious belief on FPM			0.449
Positive	42 (45.2)	68 (46.9)	
Negative	51 (54.8)	77 (53.1)	
Gestation age at enrolment			0.524
Pregnant	56 (60.22)	88 (60.69)	
Postpartum	37 (39.78)	57 (39.31)	
History of FP usage			0.522
Never	79 (84.95)	124 (85.52)	
Used	14 (15.05)	21 (14.48)	
Attending School at enrolment			0.184
Not	85 (91.4)	138 (95.17)	
In school	8 (8.6)	7 (4.83)	
Postpartum FP Methods			0.018
None	51 (54.8)	54 (37.2)	
Implant 3 years	14 (15.1)	31 (21.4)	
Implant 5 years	8 (8.6)	22 (15.2)	
Injectables	12 (12.9)	33 (22.8)	
IUDs	2 (2.2)	2 (1.4)	
Other methods	6 (6.5)	3 (2.1)	

Table 3: Effect of Parental Dialogue on Uptake Postpartum Family Planning Methods among First-time Adolescent Mothers aged 10 to 19 Years in two Sub-counties of South Central Uganda.

Uptake Postpartum Family Planning Methods	Unadjusted Odds Ratio (95% Conf. Interval)	p-value	Adjusted Odds Ratio (95% Conf. Interval)	p-value
Adolescence Stage Early/Middle	1.4 (0.73 - 2.60)	0.326	2.6 (1.19 - 5.76)	0.017 *
Occupation Status Employed	1.2 (0.71 - 2.02)	0.498	1.3 (0.71 - 2.29)	0.410
Marital Status Cohabiting/in-union	3.0 (1.66 - 5.58)	<0.001	4.3 (2.08 - 9.02)	<0.001 **
Education Level Completed Primary	1.0 (0.55 - 1.67)	0.883	1.3 (0.7 - 2.44)	0.398
Gestation age Postpartum	1.0 (0.58 - 1.67)	0.942	1.2 (0.63 - 2.18)	0.608
Schooling Status In school	0.5 (0.19 - 1.54)	0.248	0.5 (0.14 - 1.52)	0.207
Religious belief on FPM Negative	0.9 (0.55 - 1.57)	0.793	0.9 (0.52 - 1.66)	0.797
Postpartum FP Methods Implant 3 years	2.1 (1.00 - 4.37)	0.050	1.8 (0.83 - 3.98)	0.138
Implant 5 years	2.6 (1.06 - 6.36)	0.037	2.7 (1.06 - 7.08)	0.038 *
Injectables	2.6 (1.21 - 5.57)	0.014	2.8 (1.22 - 6.22)	0.015 *
IUDs	0.9 (0.13 - 6.96)	0.955	1.0 (0.12 - 7.64)	0.979
Other methods	0.5 (0.11 - 1.99)	0.306	0.4 (0.09 - 1.98)	0.280

the uptake of PPFP among early-adolescent first-time mothers and those who were cohabiting/in-union. Parental dialogues were statistically significantly associated with adolescent first-time mothers more likely to uptake of injectables and 5-Year Implants. Data supports our hypothesis that there would be an increase in postpartum family planning utilization among adolescent first-time mothers following participation in parental dialogues.

Utilization of postpartum family planning methods (PPFP)

Our study findings indicated that four in every ten adolescent first-time mothers took up a PPFP. The Ugandan government's endorsement of the 2018 National Sexuality Education Framework, which favors a values-based approach that promotes abstinence promotion, partially explains the observed low PPFP [6,7]. Barriers propelled by governance such as restrictive policies and laws, corruption, and the inability to properly uphold laws over citizens, shortage of staff and societal barriers stemming from historical, religious, and traditional circumstances, and access to safe, effective, affordable, and acceptable methods partly explain the low utilization of PPFP [8]. Compared to other studies, our study findings are similar to those observed among first-time mothers in Ghana [9]. Similar PPFP uptake among women in a system review conducted among Low- and Middle-income countries [10]. However, lower utilization of PPFP has been reported in studies carried out in Uganda. For example, low PPFP use among mothers of children less than twelve months was reported in 2021. Data from the LQAS study conducted in 64 districts of Uganda showed Lower PPFP uptake with a range from 4.5% to 17.4% among first-time mothers of children less than 12 months [11]. Similarly, compared to urban residents (18.0%) and rural residents (7.9%), our results, mainly from rural settings, show better PPFP uptake [11]. Higher i.e. 58.5% PPFP utilization among postpartum mothers was observed in a community-based cross-sectional study of Injibara town, Northwest, Ethiopia, a country similar to Uganda in demographic characteristics [12].

Effects of Parental Dialogue and Predictors of PPFP Utilization

Early/middle Adolescent first-time mothers were more likely to uptake PPFP if they attended the parental dialogues. Early/middle adolescence is a formative stage characterized by an increased desire for independent discovery and the development of personal perceptions. However, the 2021 Ugandan Ministry of Health National Family Planning Costed plan findings indicate that 26% of late-adolescent girls and younger women preferred having another child within two years of their first birth [16]. Therefore, going to these parental dialogues creates a setting that provides reassurance in autonomy-supportive contexts. This improves positive psychological and social outcomes and reinforces the desire to do well in spheres that provide continued parental approval. According to a study conducted in Malawi, first-time mothers typically form a special trusting bond with older women because of lived experience and knowledge reflected in the children they had or did not have as examples of their intentional contraceptive choices [13].

Adolescent first-time mothers in cohabiting/in-union relationships had a four-fold statistically significant increased likelihood of uptaking a PPFP after attending parental dialogues. Parental discussion on the use of available family planning methods after giving birth often predicts good intrinsic values and self-efficacy while at the same time recognizing and supporting their adolescent's cognitive autonomy in the context of healthy timing and spacing of their pregnancies. Studies observing similar populations in sub-Saharan Africa (SSA) have highlighted the fact that cohabiting/

in-union adolescent populations had the confidence to initiate conversations related to sexual health and the adoption of a family planning method [13-15].

Our adolescent first-time mothers in South Central Uganda were three times more likely to use either injectables or 5-Year Implants in the postpartum period. Adolescent first-time mothers' choice of injectables or 5-year implants for family planning after giving birth is because their parents are clearer about their desire to avoid pregnancy and they have better access to, trusted information about, and support for birth control after giving birth [17]. In Malawi, older women used stories of their intentional contraceptive choices to bias adolescent first-time mothers' choice of family planning methods [10]. The Ethiopian study provides a further grounding on the impact created by behavior change discussions with influential family members on healthcare practices and the use of recommended maternal and newborn healthcare services [16]. However, the choice of short-term methods such as injectables could be explained by social norms, and extended family demands for children in exchange for acceptance and a rise in women's new family and society status [18,19].

Conclusion

Parental discussions enhance the probability of early adolescent first-time mothers in a union relationship using a postpartum family planning method, with the 5-year implant or injectables being nearly three times more preferred than other methods. Therefore, our results demonstrate the importance of investing in interventions for this adolescent population that ideally address a range of priorities across the first-time parent's life stage.

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