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Effect of Antenatal Family Planning Counselling on Social Normative Beliefs Towards Early Postpartum Family Planning

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ABSTRACT

Introduction: Different countries and settings exhibit diverse trends in social normative beliefs towards early postpartum family planning (PPFP) with disparities based on cultural, socioeconomic, and age-related factors. There has been a paucity of studies addressing the influence of antenatal family planning (FP) counselling on these social normative beliefs, particularly in Kenya. This study analysed the impact of antenatal FP counselling on perceived social normative beliefs regarding early PPFP among postpartum women in Kisumu County.

Methods: This was an interventional study conducted in Kisumu County among 246 pregnant women in their second and third trimesters. Nurses', community, and control study arms were established with a single 20-minute session of antenatal counselling on PPFP as the intervention. A postpartum assessment of social normative beliefs towards early PPFP uptake was done. Perceived normative beliefs on PPFP was measured using 7-point Likert scale questions and analysed through ordinal logistic regression and ANOVA at the P<.05 threshold.

Results: Perceived social normative beliefs towards early PPFP were highly positive (75.2%), mean 5.3. Employment (OR 1.5; *P*=.024) and positive intimate partner relationship (OR 2.1, *P*<.0001) increased positive perceived social normative beliefs towards early PPFP while being married (OR 0.7; *P*=.038) decreased it. The nurses' arm (*P*=.047) exhibited more positive perceived social normative beliefs than the community and control arms.

Conclusions: There were high positive perceived normative beliefs on early PPFP, particularly in the nurses' arm, thus recommending nurse-led antenatal counselling.

BACKGROUND

Early postpartum family planning (PPFP), defined as the initiation of contraceptive use within six weeks after childbirth, is a critical intervention for improving maternal and neonatal health outcomes.[1,2] Globally, there is a growing recognition of its importance in reducing short interpregnancy intervals, which are associated with increased risks of preterm births, low birth weight, and maternal depletion syndromes.[3,4] Women in low- and middle-income countries (LMICs) often express a desire to start contraception shortly after delivery, yet the uptake of modern PPFP methods remains inconsistent. This variation is shaped by sociodemographic factors such as education level, residence, age, and wealth.[3,5]

Social normative beliefs, which refer to individual perceptions of what is commonly practised or approved by significant others, are among the strongest influencers of contraceptive behaviour.[6,7] In Sub-Saharan Africa, the high unmet need for PPFP is often attributed to prevailing social norms that discourage contraception in the early postpartum period due to expectations around abstinence, prolonged breastfeeding, or the desire to quickly achieve a larger family size.[4,8] Age and parity further intersect with these norms, with older women often perceived as more eligible for FP use compared to younger mothers.[6] Partner influence, satisfaction with maternal care, and community narratives also shape these beliefs, reinforcing or impeding individual decisions.[9]

Country experiences offer insight into how policy and programming can influence social normative beliefs about PPFP. For example, in the Dominican Republic, postpartum contraception is fully integrated into antenatal, delivery, and postnatal care services. In Nicaragua, policy focus on PPFP since 1994 has normalised its immediate uptake after childbirth. Ethiopia, on the other hand, has recorded improvements in adolescent PPFP uptake, though regional disparities persist, suggesting that cultural and normative factors still play a considerable role.[3,5] These country-specific trends underscore the importance of understanding and addressing social norms surrounding PPFP to improve uptake.

Evidence shows that targeted interventions, especially those delivered during antenatal care, can shift social

normative beliefs by exposing women to accurate information and creating space for discussions around family planning intentions.[10,11] However, despite growing data globally and regionally, there is limited understanding of how structured antepartum FP counselling influences social norms regarding early PPFP uptake. This is particularly true in Kenya, where much of the research on postpartum contraception focuses on access and service delivery gaps rather than socio-cultural and normative determinants.[12]

Kenya has made strides in integrating FP into Universal Health Coverage (UHC) through programmes such as Linda Mama, which provide free maternity services including postpartum contraception. Nonetheless, the contraceptive prevalence rate among postpartum women remains low (26%), and culturally embedded beliefs continue to pose barriers. [13,14] The lack of localised, quantitative evidence on the influence of social normative beliefs in early PPFP, especially among pregnant women receiving antenatal care, represents a critical research gap. This study seeks to fill that gap by assessing the effect of antenatal FP counselling on perceived social normative beliefs towards early PPFP uptake among postpartum mothers in Kisumu County, Kenya. Understanding and addressing these normative influences is essential for designing culturally sensitive, effective strategies to improve PPFP utilisation and advance reproductive health outcomes.

METHODS

Study Design, Site and Population

This was a pragmatic factorial randomised controlled trial with three arms, the nurses' and community intervention arms and a control (routine care) arm. The study was conducted between 26th February and 30th August 2022 in Kisumu County, Western Kenya. The study was in community and primary health centres. The study was implemented in six sites, comprising both urban and rural contexts, with one primary health center selected for each of the nurse-led and control arms, and one community setting selected for each of the CHW-led intervention arms.

Health facilities were eligible for inclusion if they offered the full continuum of antenatal care (ANC), delivery, and postnatal care (PNC) services. In addition, they were required to provide at least three modern contraceptive methods rated as category 1 or 2 on the World Health Organization's Medical Eligibility Criteria (MEC) for postpartum contraception. These included a barrier method such as condoms, a short-term method like oral contraceptive pills, and a long-term method such as the intrauterine device (IUD), along with referral services for permanent methods. Facilities also needed to demonstrate consistent contraceptive availability, with no stock-outs reported in the preceding six months. To ensure adequate participant volume, only facilities averaging at least 10 deliveries per month were considered. Lastly, willingness to participate in the study was a prerequisite for facility inclusion.

Pregnant women were eligible to participate if they were in their second trimester and were attending ANC at one of the selected health centres with the intention of continuing through to PNC at the same facility. Additional eligibility criteria included providing informed consent and residing within a 20-kilometre radius of the health centre. Participants were excluded from the study if they were concurrently enrolled in another research study, had a known latex allergy, did not anticipate having a male partner within the next 12 months, were unable to complete the informed consent process as assessed by the study nurse or Community Health Worker (CHW), or if their only male partner had undergone a vasectomy. The mothers were allocated to the study using simple random sampling.

Sample size calculation and sampling

The sample size was estimated based on a sample size determination formula for the difference in proportions with consideration of type I and II errors and power [15–19], where $N1=\{z\_(1-\alpha/2)*\sqrt{(\bar{p}*\bar{q}*(1+1/k)} +z\_1-\beta*\sqrt{(p1*q1+(p2*q2)/k)}\}^2/\Delta^2$. Where q1=1-p1, q2=1-p2, $\bar{p}=(p1+kp2)/(1+K)$, p1, p2 = proportion (incidence) of group 1 (27% which is the KDHS estimated current PPFP use) and group 2 (53% which is the KDHS estimated Contraceptive Prevalence Rate (CPR) in the general population) , $\Delta = |p2-p1|$ = absolute difference (desired clinical difference between intervention and control arms) between two proportions (0.26 i.e. 0.53-0.27), n1 = sample size for group #1, n2 = sample size for group #2, α = probability of type I error (is set at .05), β = probability of type II error (is set at 0.1 i.e. 90% power), z = critical Z value for a given α or β(1.96) and K = ratio of sample size for group #2 to group #1(1). Thus, for practical equal sample distribution with an assumed 10% loss to follow-up, the actual sample size was 246, with each study arm having 82 participants. As such, each facility per arm based on the rural-urban dichotomy had 41 participants. [20] The final sample size was 246, with 82 eligible pregnant women per study arm, as shown in Figure 1. Cluster random sampling was then used to get the two facilities allocated to each arm, with one facility allocated to rural and peri-urban sites per arm. The facilities were matched based on the operational level. Each client meeting the criteria was then randomly assigned to the study using simple random sampling by picking folded paper labelled "yes" or "no".

Intervention

The intervention consisted of a single session of antenatal counselling by the nurses (nurses' arm) or CHW (community arm) on early PPFP using a phone-based WHO Medical Eligibility Criteria (MEC) for contraceptives on the Kobo Collect platform as a structured counselling guide that would ensure the counsellor went through all the aspects of the MEC for early PPFP. [2] The counselling tool was designed to guide nurses and CHWs in delivering standardised, comprehensive information on early PPFP, with a specific emphasis on influencing social normative beliefs. To ensure consistency across all providers, implementers underwent refresher training and orientation on the use of the tool. The tool was deployed using the Kobo Collect platform, with a binary (yes/no) response format to confirm whether each key counselling component—including eligibility criteria for each contraceptive method during the early postpartum period—had been addressed for each client.

Validation of the tool was carried out by master trainers in

family planning, CHW training animators, and frontline health workers (nurses and CHWs) during FP refresher sessions. This process ensured that the tool was both standardised and practical for routine use across facility and community platforms. The researchers aimed to assess the impact of this structured counselling tool on perceived social normative beliefs towards early PPFP uptake by comparing outcomes across intervention arms (nurse-led and CHW-led counselling) and the control group receiving routine antenatal care. The analysis further examined whether there were significant differences in the perceived social normative beliefs based on the cadre of the implementer (nurse vs. CHW), as well as between each intervention arm and the control group, thereby evaluating both the overall and comparative effectiveness of the tool.

Data Collection Instruments and Procedures

The study employed five tools to collect data: a client exit interview guide, a case report form (CRF), an appointment card, a site appraisal form, and a questionnaire. Apart from the site appraisal form and a few open-ended questions in the questionnaire, all tools captured quantitative data. The instruments were guided by the Theory of Planned Behaviour (TPB), with the questionnaire specifically adapted from TPB testing platforms and previous FP studies. [21,22]

The CRFs, hosted on the Kobo Collect, were used at recruitment to record eligibility, demographic, obstetric, and medical information. The client exit interview guide and site appraisal form were structured according to the counselling protocol and session setup. The appointment card documented client details and the agreed PPFP follow-up date. The questionnaire, administered at 14 weeks postpartum, captured outcomes on intention and actual PPFP uptake.

Data collection was carried out by trained research assistants, nurses, and CHWs across study sites. Primary outcomes included intention to use early PPFP and actual method uptake within 14–16 weeks postpartum. Client exit interviews were conducted immediately after counselling to minimize recall bias, while site appraisal forms captured service delivery factors like provider workload, teaching aid availability, and session type (individual or group). Process quality was evaluated using indicators such as timing of counselling, use of GATHER and BRAIDED models, respectful care, confidentiality, and satisfaction.

The study ensured external validity through well-defined inclusion/exclusion criteria and probability sampling. Construct validity was established by grounding tools in TPB and adapting questions from validated FP studies. [21] Content validity was reinforced by aligning tools with the TPB-based conceptual framework. Reliability was enhanced through rigorous training of data collectors, continuous supervision, and regular protocol compliance checks. Interrater reliability was strengthened by standardising procedures. Internal consistency was confirmed via pilot testing and achieved acceptable Cronbach's alpha values (≥.70), consistent with recommendations by Nunnally and Bernstein and Ursachi et al.[23,24]

Measurement of variables

Intimate partner relationship including physical and sexual violence aspects, was assessed using a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). The questions assessed for physical violence in relationship, psychological violence, sexual violence and partner engagement on FP issues. The overall rating of good intimate partner relationship was summarised into an ordinal scale based on level of agreement (strongly disagree – 1 to strongly agree – 7). The rating was attained by averaging the score of all the parameters of the participant partner relationship score; thus, strongly agree was (7), agree (≥6, <7), moderately agree (≥5, <6), neither disagree nor agree (≥4, <5), moderately disagree (≥3, <4), disagree (≥2, <3), and strongly disagree (≥1, <2). Health education after birth was assessed by a yes or no question, while health status before, during and after pregnancy were measured based on Likert scale question ranging from very poor, poor, somewhat poor, neutral, somewhat good, good, to very good.

Process characteristics were assessed by staff's score in a post-test by the implementers of the study, client waiting time, counselling process turnaround time (time from when the client enters a counseling session to the time the counseling session is over), counselling process quality measurement, self-assessed fidelity to process, and the client setting a postnatal appointment date for PPFP. Staffs' percentage score in post-test, client waiting time, and counselling process turnaround time, client satisfaction were continuous variables, while self-rated fidelity to the process was an ordinal scale based on a 7-point Likert scale. Fidelity was measured by five Likert scale questions ranging from strongly disagree (1) to strongly agree (7) that were scored by the person administering the counselling. These indicators were averaged to get an ordinal score for individual counsellor ratings of their fidelity to the process. Therefore, fidelity to the process was rated as follows; very high fidelity (7), high fidelity (≥6, <7), moderately high fidelity (≥5, <6), neither high nor low-high fidelity (≥4, <5), moderately low fidelity (≥3, <4), low fidelity (≥2, <3), and very low fidelity (≥1, <2). Quality was assessed by "Yes" or "No" as to whether what was embedded in the counselling process was adhered to.

Perceived normative beliefs on early PPFP was directly measured using five 7-point Likert scale questions (Cronbach's alpha 0.807) ranging from strongly agree (7) to strongly disagree (1). It was then summarized into a continuous variable by calculating the mean score of the Likert scores. The mean scores were scaled to classify perceived normative beliefs as follows: very positive (7), positive (≥6 <7), moderately positive (≥5 <6), neither positive nor negative (≥4 <5), moderately negative (≥3 <4), negative (≥2 <3), and very negative (≥ <2). Social normative beliefs were then fitted in an ordinal logistic regression analysis to determine its predictors. Analysis of variance (ANOVA) in social normative beliefs was done to ascertain the difference in means between the study arms. Partial eta^2 was used to ascertain effect size. Significance was set at $P \leq .05$.

Data analysis

International Business Machines Statistical Package for

the Social Sciences (IBM SPSS) version 21 was used for the analysis. Social normative beliefs towards early PPFP were analysed using descriptive statistics to summarize their distribution across various participant characteristics. Ordinal logistic regression analysis was applied to determine how client-related factors and intervention processes influenced perceived social normative beliefs. Model diagnostic statistics were employed to assess the overall fit and explanatory strength of the regression model. The goodness-of-fit was evaluated using the Pearson chi-square test, where a *P*-value >.05 indicated an acceptable model fit to the observed data. The likelihood ratio chi-square test was used to evaluate the contribution of the included predictors, with *P*<.05 suggesting that the predictors significantly influenced social normative beliefs. The model's explanatory power was quantified using Nagelkerke's Pseudo R^2.

To assess the effect of the intervention on perceived social normative beliefs, a one-way analysis of variance (ANOVA) with a post hoc test was conducted. The Shapiro-Wilk test and Levene's test were used to assess the normality of the social normative belief scale and the homogeneity of variance, respectively, with *P*>.05 indicating the assumptions were met. Effect sizes were estimated using partial eta squared (η^2), where values between ≥.01 and <.06 were interpreted as small, ≥.06 and <.14 as medium, and ≥.14 as large. Statistical significance was considered at *P*<.05.

Ethical Consideration

The study adhered to ethical standards outlined in the Ottawa Statement on the Ethical Design and Conduct of Randomised Trials. Ethical approval was granted by the Masinde Muliro University of Science and Technology (MMUST) School of Graduate Studies and its Institutional Ethics Review Committee (IERC) under reference number MMUST/IERC/013/2021. Additional research authorisation and permits were obtained from the National Commission for Science, Technology and Innovation (NACOSTI), and official permission for data collection was secured from the County Director of Medical Services. In addition, the study was prospectively registered with the Pan African Clinical Trial Registry (PACTR202109586388973).

The trial was registered with the Pan African Clinical Trial Registry (PACTR202109586388973). All participants provided written informed consent after being informed of the study's purpose, procedures, and their rights, including the right to withdraw at any time. Confidentiality was maintained by excluding participants' names from data collection forms and ensuring interviews were conducted in private settings.

Equity and impartiality were upheld using probability sampling, ensuring equal opportunity for participation across the target population. Refresher training and standardised guidelines were provided to both intervention and control arm providers to maintain uniformity and ethical integrity during counselling sessions.

RESULTS

Sociodemographic Characteristics of Participants

Table 1 shows the descriptive analysis of the sociodemographic characteristics of the study participants, including age, marital status, level of education, employment status, average monthly income and religion. The distribution of these variables across study arms has been shown for comparison purposes only. There was an equal sample distribution across the study arms of 82 participants. The mean age of the study participants was 25.2 years (SD 4.9).

Perceived social normative beliefs on early PPFP in Kisumu County

Overall perceived social normative beliefs on PPFP was converted into a continuous variable by getting the mean score of the Likert scale scores for each parameter. The mean of social normative beliefs was then calculated and used to classify perceived normative beliefs as follows: very positive (7), positive (≥6 <7), moderately positive (≥5 <6), neither positive nor negative (≥4 <5), moderately negative (≥3 <4), negative (≥2 <3), and very negative (≥ <2). Figure 2 is a summary of the Likert scale scores. Perceived normative beliefs about early PPFP were distributed across the whole spectrum from very negative perceived norm to very positive perceived norm. The average perceived norm was high, 5.3 (SD=1.3). The participants had a preponderance towards positive normative beliefs about early PPFP, with 185 (75.2%) having either moderately positive 77 (31.3%), positive 105 (42.7%), or very positive 3 (1.2%) perceived normative beliefs.

Predictors of perceived social normative beliefs on early PPFP

Table 2 presents the results of an ordinal logistic regression analysis conducted to explore the relationship between client-related and process-related factors and perceived social normative beliefs toward early PPFP. The model explained approximately 16.5% of the variance in perceived social normative beliefs (Nagelkerke's Pseudo $R^2 = 0.165$), indicating a moderate explanatory power.

Among the sociodemographic variables assessed—age, level of education, monthly income, marital status, and employment status—only marital status and employment status emerged as statistically significant predictors. Marital status was inversely associated with positive social normative beliefs. Being married reduced the odds of holding positive normative beliefs towards early PPFP (OR 0.7; 95% CI, 0.5 to 1.0; *P*=.038), suggesting that married women may be influenced by conservative family or partner expectations that reinforce traditional postpartum roles or delay contraceptive use. Employment status, in contrast, had a positive influence. Being employed significantly increased the likelihood of positive normative beliefs (OR 1.45; 95% CI

Intimate partner relationship quality, measured on a 7-point Likert scale, demonstrated a strong and statistically significant positive association with perceived normative beliefs. With each unit increase in relationship rating, the odds of having positive normative beliefs toward early PPFP more than doubled (OR 2.1; 95% CI, 1.66 to 2.65; *P*<.0001). This emphasises the central role of supportive partner dynamics in shaping social expectations and readiness for postpartum contraceptive uptake.

FIGURE 1: CONSORT Diagram Showing Participant Flow

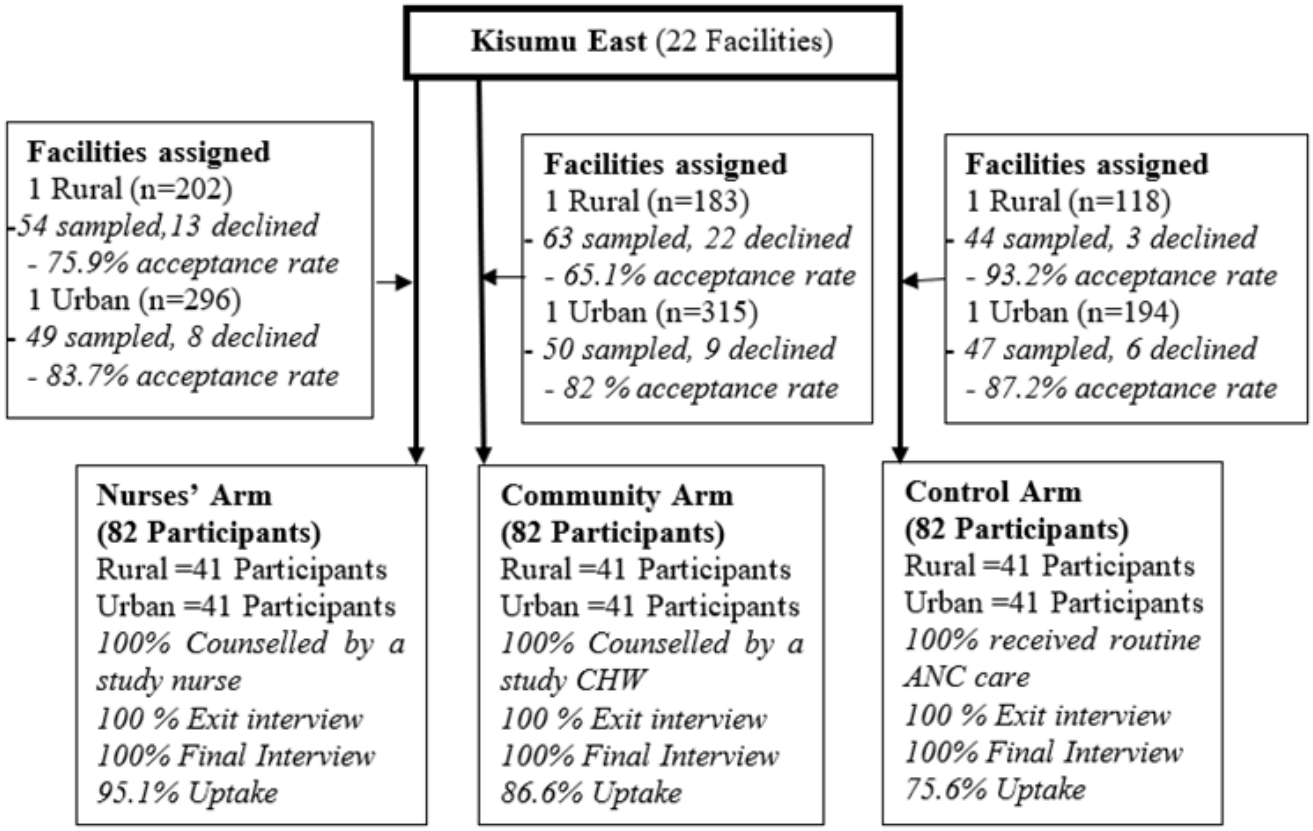


TABLE 1: Sociodemographic Characteristics of the Client Per Study Arm (N=82)

Sociodemographic characteristics	Study Arm		
	Nurses', N(%)	Community, N(%)	Control, N(%)
Sample distribution	82(33.33)	82(33.33)	82(33.33)
Age group (Years)			
15-24	43(33.1)	45(34.6)	42(32.3)
25-34	35(35.0)	32(32.0)	33(33.0)
35-44	4(25.0)	5(31.3)	7(43.8)
Marital status			
Not married	16(41.0)	10(25.6)	13(33.3)
Married	66(31.9)	72(34.8)	69(33.3)
Level of education			
None	1(100.0)	0(0.0.0)	0(0.0)
Primary	32(35.6)	27(30.0)	31(34.4)
Secondary	39(33.1)	39(33.1)	40(33.9)
Tertiary	10(27.0)	16(43.2)	11(29.7)
Employment status			

Continue

TABLE 1: Continued

Sociodemographic characteristics	Study Arm Nurses', N(%)	Community, N(%)	Control, N(%)
Not employed	34(44.2)	28(36.4)	15(19.5)
Housewife	17(18.3)	34(36.6)	42(45.2)
Self employed	25(41.0)	15(24.6)	21(34.4)
Formal employment	6(40.0)	5(33.3)	4(26.7)
Income			
<5000	67(31.5)	73(34.3)	73(34.3)
5000-10000	8(42.1)	5(26.3)	6(31.6)
>10000	7(50.0)	4(28.6)	3(21.4)

Cross-tabulation of Sociodemographic characteristics with study arm. N(%) where N is frequency, % is proportion.

TABLE 2: Predictors of Perceived Normative Beliefs Towards Early PPFP

Category	Parameter	AOR	95% CI	*P-value*
Client related aspects	Clients Age	1.0	0.9 - 1.1	.981
	Marital status	0.7	0.5 – 1.0	.038
	Level of education	0.8	0.6 - 1.2	.304
	Employment status	1.5	1.1 – 2.0	.024
	Monthly income	0.8	0.5 - 1.3	.356
	Gestation at recruitment	1.0	1.0 - 1.1	.852
	Existing illness	0.8	0.3 - 2.3	.675
	Number of children	1.1	0.9 - 1.3	.635
	Health education in pregnancy	0.5	0.1 - 1.8	.309
	Complication during pregnancy	1.2	0.7 - 2.1	.575
	ANC visits number	0.9	0.8 - 1.1	.658
	Labour complications	1.1	0.5 - 2.3	.753
	Postpartum complication	1.6	0.6 - 3.9	.297
	Health education afterbirth	1.1	0.5 - 2.2	.832
	Health status After pregnancy	1.9	0.6 - 5.9	.278
	Health status 3 months postpartum	0.8	0.3 - 2.1	.608
	Rating previous experience with FP	1.2	-27.1 - 1.2	.755
	Estimated cost of previous FP services	0.9	-27.4 - 1.0	.846
	Intimate partner relationship	2.1	1.6 - 2.7	<.0001
Process related aspects	FP counselling waiting time	1.0	0.8 - 1.2	.550
	FP Counselling turnaround	1.0	0.9 - 1.2	.099
	Mode counselled	1.4	0.8 - 2.3	.254
	Counselling Quality	0.9	0.8 - 1.0	.638
	Fidelity to process	1.2	0.9 - 1.5	.324
	Set Postnatal appointment	1.1	0.6 - 1.9	.873

Ordinal regression analysis of predictors of perceived normative beliefs towards early PPFP; OR- Odds Ratio, 95% CI – 95% Confidence Interval, Significance set at P≤0.05.

Variables such as number of ANC visits, gestational age at first FP counselling, comorbidity, number of children, health education during pregnancy, and complications during pregnancy were analysed. None were statistically significant predictors. However, some trends were observed where later initiation of FP counselling in pregnancy, higher parity, and experience of pregnancy complications were all associated with more favourable social normative beliefs toward early PPFP—though these trends were not statistically significant.

Aspects such as postnatal health education, complications during labour or postpartum, and self-rated health status in the first three months postpartum were also not significantly associated with perceived normative beliefs. However, except for self-rated postpartum health, all these variables showed a positive, albeit non-

significant, trend toward supporting early PPFP social norms. Neither the cost nor the quality of previous FP experiences significantly influenced perceived social normative beliefs. This suggests that current perceptions and intentions regarding early PPFP may be shaped more by immediate interpersonal and social context than by historical experiences.

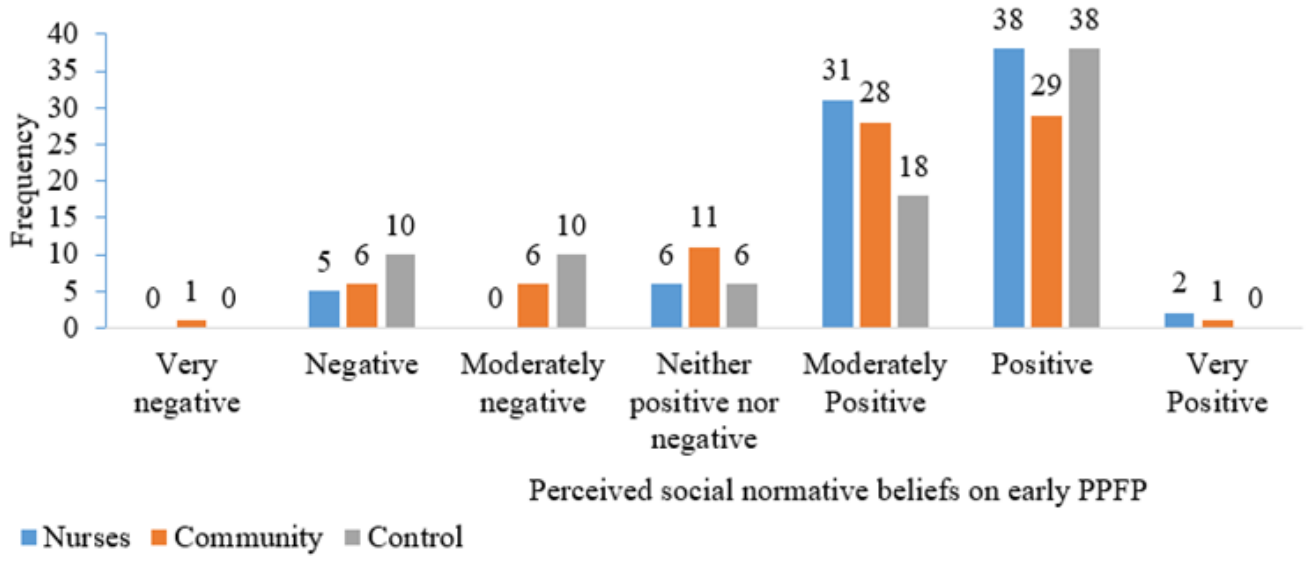
Counselling-related variables—including waiting time, turnaround time, mode of counselling (group vs. individual), counselling quality, and fidelity to the counselling protocol—did not show a statistically significant impact on perceived normative beliefs. While process quality is crucial for service delivery, its direct influence on changing deep-rooted social norms appears limited within the timeframe of this study.

These findings suggest the complex interplay between socio-relational dynamics and normative beliefs around postpartum contraceptive use. Notably, positive intimate partner relationships and women's employment emerged as facilitators of favourable social norms, highlighting potential leverage points for intervention. Conversely, the paradoxical negative association between marriage and positive normative beliefs may reflect entrenched cultural expectations around fertility and spousal approval. While antenatal and intrapartum processes did not significantly alter normative beliefs in this study, their non-significant positive trends suggest that more intensive or sustained engagement may be required to shift social norms. Interventions aiming to transform social normative beliefs around early PPFP should prioritise couple-focused strategies, empowerment through economic engagement, and tailored messages for married women.

Effect of intervention on perceived social normative beliefs about early PPFP

Table 3 shows the difference in distribution of perceived social normative beliefs on early PPFP per study arm was assessed using ANOVA. Partial eta^2 was used to estimate between arm effect size for ANOVA. The nurses' arm had a mean score of 5.6 (SD = 1.1), the community arm had a mean score of 5.2 (SD = 1.3), and the control arm had a mean score of 5.1 (SD = 1.4). Across all study arms, the total mean score for perceived social normative beliefs on PPFP was 5.3 (SD = 1.3). The normality of the perceived social normative beliefs about the early PPFP scale was assessed using the Shapiro-Wilk test. The results indicated that the data was approximately normally distributed, W (246) = .981, P =.079. Therefore, the assumption of normality was met. ANOVA for perceived social normative beliefs on early PPFP was done with Levene's test showing that homogeneity of variance was not met F (2,243) =5.4, P=.005 thus Brown-Forsythe adjusted ANOVA was used for interpretation, and Tamhane's post hoc test was used to estimate the significance of the difference, effect size between arms. The ANOVA for perceived social normative beliefs on early PPFP and study arms revealed a significant difference in the mean perceived social normative beliefs scores between arms F (2,233.7) =4.2, P=.015 with Tamhane's post hoc test showing significantly more positive perceived social normative beliefs on PPFP between the nurses' arm and the community arm (P=.047) and the control arms (P=.022) with a small effect size (partial eta^2 0.01 to 0.04). There was no significant difference between community and control arms (P=.972).

FIGURE 2: Perceived Social Normative Beliefs on Early PPFP Per Study Arm



1.05 to 2.0; P=.024), possibly reflecting greater autonomy, access to information, or peer influences that favour early PPFP

TABLE 3: ANOVA of Social Normative Beliefs on Early PPFP Between Study Arms

Study Arm A	B	MD (A-B)	95% CI	P-Value	Effect size
Intervention	Control	0.3	-0.1 - 0.6	.075	0.01
Nurses'	Community	0.4	0.0 - 0.9	.047	0.04
Nurses'	Control	0.5	0.1 – 1.0	.022	0.04
Community	Control	0.1	-0.4 - 0.6	.972	0.00

A and B are column labels, MD- Mean difference between A and B; 95% CI is the Confidence Interval for the Mean Difference (MD); Effect size was estimated by Partial eta2 (.01 to <.06 - Small, .06 to <.14 medium, ≥.14 Large); Levene's F (2,243) =5.4, P=.005, Tamhane's post hoc test was applied because homogeneity of variance was met, Significance set at $P \leq .05$.

DISCUSSION

The participants had a preponderance towards positive perceived normative beliefs about early PPFP, with 75.2% being in the positive spectrum. The current finding suggests that a majority of the participants held positive beliefs about early PPFP, thus implying that early PPFP is considered normal or acceptable within their social or cultural group. A previous study in which messages on FP were delivered to women showed that exposure to these FP messages influenced perceptions towards postpartum contraceptives and their use in Ethiopia. [25] Positive perceived normative beliefs about early PPFP may be associated with increased use of FP services and strategies; hence, there is a need for attention to services that positively enhance beliefs towards FP. [26,27]

Perceived normative beliefs about early PPFP are likely to be moderated by a wide range of factors. In the current research being married was shown to reduce the odds of having a positive perceived social normative belief on early PPFP. The relationship between marital status and perceived social normative beliefs about early PPFP is likely to be influenced by a wide range of factors like cultural and social norms around FP, family principles, religion, in-laws' perceptions about the number of children one should have and early initiation of PPFP. [28–30] These norms, like partner views about early PPFP, in-laws' desire for more children, and others, are unique to married women. Additionally, individuals who are married may face different challenges or have different priorities related to FP compared to those who are not married, which may also impact their perceived social normative beliefs about early PPFP and ultimately PPFP utilisation. On the other hand, being employed increased the odds of having a positive perceived social normative belief about early PPFP. Employed individuals may have more access to information about and resources for FP, which may influence their perceived social normative beliefs about early PPFP. Likewise, it's more likely the social support networks of an employed person are likely to be more well enlightened and informed about PPFP than those of the unemployed counterparts. Thus, the employed client might have a more positive perceived normative belief about early PPFP. [31]

Good intimate partner relationship increased perceived social normative beliefs on early PPFP. The quality of an individual's relationship with their intimate partner may affect their beliefs about what is considered normal or acceptable within their social or cultural group when it comes to early PPFP. A study by Abota and others shows that individuals who have good relationships with their intimate partners may be more likely to discuss and make joint decisions about FP, which may lead to more positive perceived social normative beliefs about early PPFP. [32] Conversely, individuals who have strained relationships with their intimate partners are less likely to discuss or agree on FP decisions, which may lead to more negative perceived social normative beliefs about early PPFP. [33]

The nurses' arm was more effective in enhancing positive perceived normative belief about early PPFP uptake as compared to community and control arms. Tessema and others examined the role of health workers in shaping women's perceptions of early PPFP. The research revealed that these workers significantly influence women's views during postpartum consultations. They have the ability to shift negative or neutral perceptions about early PPFP to positive ones. A key factor behind this impact is the trust women place in health workers, especially those who can attend to their fears and hesitancy towards FP. [34] Therefore, it is important to have well-trained healthcare professionals who can respond to women's FP information needs, especially during the antenatal period. The community arm did not have a significant difference with the control arm, signalling the necessity to reimagine community health worker training on early PPFP and overall community outreach strategies, tailoring them to the unique needs of the population.

Limitations of this study

The intervention was specifically among individuals already attending the ANC clinic, thus posing a potential influence of selection bias, a systematic error resulting from choosing participants who were already attending the ANC clinic as opposed to selection from the general population of pregnant mothers. This poses a considerable threat to the external validity of our study, more so the generalisation to the population of pregnant mothers. However, owing to the fact that both the intervention and control samples were drawn from ANC attendants, the potential selection bias might have evened out.

CONCLUSIONS

The study found that the majority of participants held positive perceived normative beliefs about early PPFP, with significant differences noted between the intervention and control arms. Participants in the nurses' arm exhibited higher positive beliefs compared to the control and community arms. Employment and a positive intimate partner relationship increased the likelihood of positive beliefs, while marriage decreased these odds.

Recommendation

To enhance perceived social normative beliefs toward early postpartum family planning (PPFP), nurse-led antenatal counselling should be strengthened by integrating structured, evidence-based sessions into routine ANC visits in targeted facilities with clear annual targets. This should be supported by standardised counselling tools and ongoing professional development for nurses.

Additionally, the promotion of women's economic empowerment should be prioritised by collaborating with local partners to implement community-based livelihood or skills training programmes that directly engage pre-pregnancy, pregnant and postpartum periods, which are critical contraceptive windows for early PPFP. These programmes should aim to increase women's autonomy and decision-making capacity, thereby reinforcing positive beliefs toward early PPFP.

To address the strong influence of partner dynamics, health systems should integrate couple-focused interventions such as male partner inclusion in antenatal family planning counselling sessions and community dialogue forums, with that being included in the annual line target to foster more supportive intimate partner relationships.

Finally, specific interventions should be piloted to mitigate the observed negative effect of marriage on PPFP beliefs. This could include developing and implementing a targeted communication strategy addressing cultural and relational barriers among married women as an annual target, with measurable outcomes such as improved intention scores and partner support metrics tracked through routine M&E systems.

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