

# Effects of Postpartum Family Planning Counselling on Contraceptives' Knowledge, Attitudes and Intention among Women Attending a General Hospital in The Gambia: A Randomized Trial

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## Research Article

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# Abstract

## Background

Postpartum Family Planning (PPFP) counselling is a critical component of maternal health care that has the potential of meeting women's desire for contraception. The study aimed to evaluate the effectiveness of PPFP counselling on contraceptives' knowledge, attitudes and intention among women attending a general hospital in The Gambia.

## Methods

The study used a quasi-experimental design with two groups; the intervention and the comparison groups. A sample size of 674 participants was determined by a formula for comparison between two groups. The questionnaire was developed based on a literature review and was pre-tested on 10% of the total study sample size (68). A reliability of 0.731 was obtained. A systematic random sampling method was employed to select those who met the inclusion criteria. Data were collected on face-to-face interviews in Mandinka, Fula and Wolof with a 100% response rate at baseline and 96% at post-test. The intervention strategy was family planning counselling using the GATHER approach. Data were analysed using the SPSS version 21.00 and the statistical analysis included both descriptive and inferential methods. An ethical approval was obtained from the Research and Ethics Committee, School of Basic Medical Sciences, College of Medicine, University of Benin (CMS/REC/2017/017) and the Gambia Government/Medical Research Council Laboratories Joint Ethics Committee (R017016Av1.1).

## Results

Baseline respondents' socio-demographic characteristics revealed that the two groups had similar characteristics and were therefore comparable ( $P > 0.05$ ). A statistically significant difference existed on knowledge, attitude, and intention between the intervention and comparison groups at post-intervention ( $p < 0.05$ ) while no significant difference was observed at baseline. Significant gains were achieved in the intervention group in terms of knowledge, attitude, and intention post-intervention.

## Conclusion

The present study therefore highlights the need to conduct family planning counselling during the immediate postpartum period, particularly before the discharge of women from the hospital so as to ensure improved contraceptive uptake, prevent unwanted pregnancy and closely spaced pregnancy and thus improve maternal health outcomes.

## Plain English Summary

Family planning counselling helps clients choose and use family planning methods that suit their needs. The contraceptive uptake rate is very low in The Gambia. Therefore, the study aimed to evaluate the effectiveness of postpartum family planning counselling on knowledge, attitudes and intention among women attending a general hospital in the country. The intervention site was Bansang General Hospital (BGH) in the Central River Region while Soma Health Centre (SHC) in the Lower River Region was the comparison group. A total 674 women were recruited and contraceptive counselling sessions were conducted three times during a six-week period using contraceptive methods and posters at the intervention site. Women that gave birth at the SHC had no family planning counselling but had a health talk on umbilical care. The questionnaire assessed socio-demographic characteristics, knowledge, attitude and intention to utilize a contraceptive method, and data was collected on face-to-face interviews in the three most spoken local languages; Mandinka, Fula and Wolof.

Results indicated there was no statistically significant difference in participants' socio-demographic variables between the two study groups except for ethnicity, marital status and employment. Similarly, no significant difference was observed at baseline. However at post-intervention, a statistically significant difference was noticed on knowledge, attitude, and intention between the intervention and comparison groups ( $p < 0.05$ ).

In conclusion, the study has highlighted the need to conduct a structured and regular family planning counselling in order to increase women's knowledge, attitude, and intention and subsequently contraceptive uptake. This will help to address the

already low contraceptive uptake and thus reduce maternal mortality and morbidity in the country.

## Background

PPFP counselling is a critical component of maternal health care that has the potential of meeting women's desire for contraception, and thus improve contraceptive uptake. PPFP is defined as the prevention of unintended pregnancy and closely spaced pregnancies through the first 12 months following childbirth.<sup>1</sup> Globally, nearly 65% of women in their first postpartum year have an unmet need for family planning services,<sup>2</sup> with more than 220 million women in developing countries, mainly in South Asia and sub-Saharan Africa.<sup>3</sup> In India, 65% of women in the first- year postpartum have an unmet need for family planning.<sup>4</sup> A high unmet need for family planning contributes to low contraceptive use. In addition, PPFP usage varies in sub-Saharan countries; 40% in Zambia, 25% in Kenya, 20% in Tanzania, 15% in Nigeria and less than 10% in Ethiopia.<sup>5</sup>

In The Gambia, the unmet needs stand at 24% for currently married women and 45% for sexually active unmarried women,<sup>6</sup> and the prevalence of contraceptive use among married women is 19%. However, the prevalence of PPFP, quality and content of PPFP counselling is also unknown in the country .

The goals of contraceptive counselling are to educate women about contraception, discuss current and future contraceptive needs, and select a contraceptive modality, if needed, thereby avoiding the risks of unintended pregnancies.<sup>7</sup> Evidence indicates that structured counselling protects women's rights to an informed and voluntary decision regarding their reproductive choices and improves the use of modern contraception methods.<sup>8 9</sup>

Furthermore, the level of women's knowledge has a significant effect on the future use and non-use of postpartum contraception. Evidence from a systematic review reveals that facility-and community-based interventions can have a significantly positive effect on knowledge and intention to use contraceptives as outcomes.<sup>10</sup>

Researchers found that knowledge, and awareness on contraceptive is high among the Nigerian population. However, this awareness has not been translated into increased contraceptive use, and so contraceptive prevalence has remained low.<sup>11</sup> Furthermore, a cross-sectional observational study conducted among postpartum women in Nepal revealed that contraceptive awareness and knowledge among the postpartum women was high but their usage was low.<sup>12</sup>

Attitude is the most difficult part to measure as it is characterized in a very abstract way. A published work from Ebonyi State, Nigeria, indicated that postpartum women have a favourable attitude towards contraception.<sup>13</sup> Similarly, a study in Iran revealed that among postpartum women the intervention group had a higher positive attitude towards contraceptives than their counterparts in the control group ( $p < 0.05$ ).<sup>14</sup>

In Uganda, 71.4% of women in the control group and 87% in the intervention group intended to use a modern contraceptive method following counselling on PPFP.<sup>15</sup> Similarly, studies from Nigeria showed that most women intended to use a method of postpartum contraception<sup>16</sup> while in Ohio, USA, the majority of postpartum women (91%) intended to use contraception before their discharge following delivery at a large university hospital.<sup>17</sup>

In The Gambia, family planning services have been free of charge and available in all public health facilities since 1975, yet the contraceptive prevalence rate (CPR) shows a downward trend in married women aged 15–49 years for various reasons, such as low educational level and religious barrier.<sup>6</sup> Hence, contraceptive counselling during the postpartum period is of paramount importance to improve knowledge, attitude and intention and the use of modern contraception methods which help to prevent or delay a subsequent pregnancy after a live birth. A literature search revealed that no published study on PPFP counselling on the topic was credited to the country. Therefore, the aim of this study was to evaluate the effects of PPFP counselling on contraceptives' knowledge, attitude and intention to use among women attending health facilities in The Gambia.

## Methods

A hospital-based quasi-experimental study design with a comparison group was used for this study. The intervention group was exposed to the intervention plan while women in the comparison group were provided with the routine care at the postnatal ward, in addition to the placebo (health talk on umbilical care). Refer to Fig. 1.1 for further details.

## Study Setting

The study was conducted in two health facilities. BGH as the intervention facility located in the Central River Region in rural Gambia, about 300 km from the capital city Banjul. Furthermore, in order to prevent contamination, the comparison group was observed at the SHC located in the Lower River Region, about 180km from the capital.

## Sample Size and Sampling Technique

The sample size estimation of this study was determined by using a formula for sample size calculation for comparison between two groups when endpoint is quantitative data.<sup>18</sup> Using a prevalence of 57% and 49%, women that accepted contraceptives following PPFPP counselling in Rwanda,<sup>19</sup> the sample size of this study was determined by the formula below:

$$n = \frac{2 \times (z_{\alpha} + z_{\beta})^2 \times p \times (1 - p)}{(p_0 - p_1)^2}; \text{Where, } p = \frac{p_0 + p_1}{2}$$

Thus:

for  $\alpha = 0.05$ ;  $\beta = 0.20$ ;  $p_0 = 57\%$  and  $p_1 = 49\%$ ;

$$n = \frac{2 \times (1.96 + 0.84)^2 \times 0.53 \times (0.47)}{(0.08)^2}; \text{where } p = \frac{0.57 + 0.49}{2}$$

The calculated sample size ( $n$ ) = 612; provision for 10% non-response rate was made and the final sample size was 674. Furthermore about 27 (8%) women were lost to follow-up in the intervention group.

## The Intervention Group

The inclusion criteria for women in the intervention group was based on all those who gave birth at the BGH with a live baby on day 1, aged 13–49 years, and gave birth at the BGH during the months of November 2017 and May 2018 and were receiving postnatal care and attending infant welfare clinic at the BGH or within its catchment area. Exclusion was based on severe chronic illness of the mother (mental, cardiac, cancer, liver, kidney), women with postpartum haemorrhage, infection and fever  $> 38^{\circ}\text{C}$ .

## The Comparison Group

In order, to minimize contamination, the control group was at the SHC, which is about 120 kilometres from the intervention site. Furthermore, women in this group included those who gave birth at the health centre with a live baby, on Day 1, aged 13–49 years, and delivered at SHC during/between the months of November 2017 and May 2018 and were receiving postnatal care and attending infant welfare clinic at the SHC or within its catchment area. Exclusion was based on severe chronic illness of the mother (mental, cardiac, cancer, liver, kidney); women with postpartum haemorrhage, infection and fever  $> 38^{\circ}\text{C}$ .

## Study Tool

A questionnaire was developed by the Principal Investigator based on the literature review to assess women's knowledge, attitude, and intention towards PPFPP methods. The research objectives guided the development of the questionnaire, which

consisted of 37 close-ended questions. It was divided into four sections as follows: Section A; This elicited the socio-demographic characteristics of the respondents. Section B obtained knowledge of family planning. Two points were given for any correct answer, and a zero point for any wrong or unknown answer. The total possible scores for this part of the questionnaire ranged from 0 to 54. Scores from 0–17 were considered poor knowledge, and 18–54 good knowledge. Section C addressed postpartum women's contraceptive attitudes related factors were measured by nine items on a five-point Likert scale viz strongly agree = 5, agree = 4, don't know = 3, disagree = 2, strongly disagree = 1. The total possible score for this part of the questionnaire ranged from 9 to 45. Scores from 9–27 were considered negative, 28–45 were positive. Finally, Section D which looked at intention to utilize contraceptives had eight items on a five-point Likert scale viz agree strongly = 5, agree somewhat = 4, don't know = 3, disagree somewhat = 2, and disagree strongly = 1. This section determined if the woman intended to use modern contraceptives. The total possible score for this part of the questionnaire ranged from 8 to 40. Scores from 8–25 were considered low, and 26–40 were high. Each subscale was calculated separately, and therefore three different scores were obtained for each subject. The questionnaire developed for this study is provided as Additional File 1

## Intervention Plan

The goal of the intervention was to increase contraceptive knowledge, attitude, and intention to use among the postpartum women, thus preventing unintended and closely spaced pregnancies. This was accomplished through contraceptive counselling designed to improve contraceptive knowledge, attitude, and intention.

Counselling was provided three times; day one before hospital discharge. This was conducted before or immediately after the medical ward rounds using the GATHER (Greet, Ask, Tell, Help, Explain and Return) approach.<sup>20</sup> Sample contraceptive methods currently offered in The Gambia were used during counselling such as the male and female condoms, pills, emergency contraceptives, Depo Provera, Implants (Jadelle and Implanon), Intra-uterine Device, and Female Sterilization.

The second counselling was conducted on the 9th day at the post-natal clinic, before or after the change of card (women came for a change of card, from antenatal to infant welfare card. This is because the child is given a name on the 8th day in The Gambia). It is a cultural practice that during the first week of postpartum women stay indoors and only go to the hospital if the child is ill. The second counselling session was conducted using the same GATHER approach - contraceptive poster and sample contraceptive methods as the first session.

The third counselling session was carried on the 40th day at the Infant Welfare Clinic (e.g. while the woman was waiting for, or immediately after, the baby received immunization). This session was conducted in the same way as the first and second counselling sessions. Refer to Fig. 1.2 for further details.

## Post- Intervention

Regarding the post-intervention, the same questionnaire was administered to women in both groups in the sixth week to assess knowledge, attitude, and intention to utilize modern contraception. Similarly, at the end of the first six weeks, both groups were assessed to determine the level of knowledge, attitude, and intention to utilize modern contraception.

## Reliability

The study interview schedule was pre-tested tested using 10% of the total study participants (68), from two different health facilities (34 for each facility), on participants that had similar inclusion criteria as those that participated in the study. In this study, the reliability was 0.731. The questionnaire was modified based on the pre-test results.

## Data Collection

Data was collected using interviewer-administered questionnaires by eight already trained practising nurse-midwives and contraceptive counsellors. These practitioners were trained as research assistants and were fluent in at least two of the three

languages; Mandinka Fula and Wolof ) spoken in the study sites. The baseline data was collected through face-to-face interviews and the questionnaire was retrieved immediately, thus a 100% return rate was obtained for both groups.

Data was collected from November 2017 to May 2018 in the following order: November –December 2017 was used to collect baseline data, and December 2017 - February2018 post -test data. Analysis of data included both descriptive and inferential statistics. Data was presented using frequency tables, and summary statistics. Statistical tests were done using Chi-squared tests, t-tests, Difference -In- Difference analysis (DID, Single Difference (SD) and binary logistic regression. Statistical significance was set at  $p < 0.05$ .

## Results

Table 1 shows the socio-demographic characteristics of the study participants. There was no statistically significant difference between the intervention and control groups in terms of their socio-demographic characteristics except for ethnicity, marital status and employment. More than a third of the participants in both the intervention and control groups had no formal education.

Table 1  
Socio-demographic Characteristics of Participants (n = 647)

	Intervention (n = 310)	Comparison (n = 337)		
Variables	n (%)	n (%)	Test Statistics	p-value
<b>Age group (years)</b>	91 (29.4)	92 (27.3)	$\chi^2 = 2.922$	0.712
≤20	81 (26.1)	80 (23.7)	t = 0.660	0.510
21–25	81 (26.1)	97 (28.8)		
26–30	35 (11.3)	46 (13.6)		
31–35	19 (6.1)	21 (6.2)		
36–40	3 (1.0)	1 (0.3)		
41+	25.4 (± 6.3)	25.8 (± 6.1)		
Mean (± SD)				
<b>Parity</b>	82 (26.5)	100 (29.7)	$\chi^2 = 2.404^{\square}$	0.512
1	164 (52.9)	170 (50.4)	t = 0.504	0.614
2–5	64 (20.6)	65 (19.3)		
6–10	0 (0.0)	2 (0.6)		
11+	3.5 (± 2.2)	3.4 (± 2.4)		
Mean (± SD)				
<b>Age at Marriage †</b>	73 (23.9)	54 (16.5)	$\chi^2 = 7.311^{\square}$	0.089
≤15	199 (65.0)	236 (72.2)	t = 0.735	0.463
16–20	28 (9.2)	34 (10.4)		
21–25	5 (1.6)	3 (0.9)		
26–30	1 (0.3)	0 (0.0)		
31+	17.7 (± 2.9)	17.8 (± 2.5)		
Mean (± SD)				
<b>Ethnicity</b>	102 (32.9)	135 (40.1)	$\chi^2 = 67.058$	< 0.001*
Fulla	99 (31.9)	162 (48.1)		
Mandinka	96 (31.0)	23 (6.8)		
Wollof	7 (2.3)	4 (1.2)		
Others	5 (1.6)	10 (3.0)		
Sarahule	1 (0.3)	3 (0.9)		
Jolla				

†Age at marriage intervention (n = 306), control group (n = 327) <sup>□</sup> Fisher's Exact Test

	Intervention (n = 310)	Comparison (n = 337)		
<b>Marital Status</b>	306 (98.7)	321 (95.3)	$\chi^2 = 6.956$ <sup>□</sup>	0.035*
Married	4 (1.3)	10 (3.0)		
Single	0 (0.0)	3 (0.9)		
Divorced	0 (0.0)	3 (0.9)		
Widow	0 (0.0)	0 (0.0)		
Cohabiting				
<b>Educational Level</b>	114 (36.8)	141 (41.8)	$\chi^2 = 9.099$	0.059
None	121 (39.0)	99 (29.4)		
Elementary	47 (15.2)	52 (15.4)		
Junior Secondary	21 (6.8)	38 (11.3)		
Senior Secondary	7 (2.3)	7 (2.1)		
Tertiary				
<b>Religion</b>	309 (99.7)	334 (99.1)	$\chi^2 = 1.195$ <sup>□</sup>	1.000
Islam	1 (0.3)	2 (0.6)		
Christianity	0 (0.0)	1 (0.3)		
African Tradition				
<b>Employment Status</b>	297 (95.8)	301 (89.3)	$\chi^2 = 9.713$	0.002*
Unemployed	13 (4.2)	36 (10.7)		
Employed				
†Age at marriage intervention (n = 306), control group (n = 327) <sup>□</sup> Fisher's Exact Test				

It was observed that at baseline there was no statistically significant difference between the two groups except for knowledge on types of contraceptives. Similarly, there was no significant difference in mean knowledge score between the intervention and the comparison groups. ( $p = 0.860$ ). However, at post-intervention there was a statistically significant difference in terms of knowledge on the entire domain measured and the mean knowledge score ( $p = 0.000$ ) as shown in Table 2.

Table 2  
Pre and Posttest Knowledge between the Study Groups

Pretest		Posttest						
	Intervention (n = 310)	Comparison (n = 337)	Test Statistics	p- value	Intervention (n = 310)	Comparison (n = 337)	Test statistics	p-value
Variables	n (%)	n (%)			n (%)	n (%)		
<b>Definition*</b>	262 (84.5)	269 (79.8)	$\chi^2 =$ 2.418	0.120	297 (95.8)	271 (80.4)	$\chi^2 =$ 35.683	< 0.001**
Correct	48 (15.5)	68 (20.2)			13 (4.2)	66 (19.6)		
Incorrect								
<b>Benefits of FP*</b>	252 (81.2)	269 (79.8)	$\chi^2 =$ 0.222	0.638	293 (94.5)	269 (79.8)	$\chi^2 =$ 30.551	< 0.001**
Correct	58 (18.8)	68 (20.2)			17 (5.5)	68 (20.2)		
Incorrect								
<b>Importance of FP</b>	249 (80.3)	273 (81.1)	$\chi^2 =$ 0.049	0.825	288 (92.9)	277 (82.2)	$\chi^2 =$ 16.726	< 0.001**
Correct	61 (19.7)	64 (18.9)			22 (7.1%)	60 (17.8)		
Incorrect								
<b>Types of FP*</b>	232 (74.8)	282 (83.7)	$\chi^2 =$ 7.728	0.005*	307 (99.0)	284 (84.3)	$\chi^2 =$ 44.489	< 0.001**
Correct	78 (25.2)	55 (16.3)			3 (1.0)	53 (15.7)		
Incorrect								
<b>Location to obtain contraceptives</b>	233 (75.2)	271 (80.4)	$\chi^2 =$ 2.589	0.108	273 (88.1)	271 (80.4)	$\chi^2 =$ 7.058	0.008*
Correct	77 (24.8)	66 (19.6)			37 (11.9)	66 (19.6)		
Incorrect								
<b>Appropriate place to obtain contraceptives</b>	224 (72.3)	252 (74.7)	$\chi^2 =$ 0.527	0.468	246 (79.4)	238 (70.6)	$\chi^2 =$ 6.532	0.011*
Correct	86 (27.7)	85 (25.2)			64 (20.6)	99 (29.4)		
Incorrect								
<b>Mean Knowledge Score</b>	12.4 (5.8)	12.5 (5.4)	t= -0.177	0.860	19.0 (5.3)	13.6 (6.4)	t= 11.547	< 0.001**

Table 3 shows that the intervention group, a lesser proportion of the respondents (18.4%) had good knowledge at baseline and a higher proportion (61.3%) had a good knowledge post-intervention, thus a difference of 42.9% was gained. Regarding the comparison group, a lesser proportion of the respondents (14.8%) had a good knowledge at baseline and a greater proportion (25.2%) had a good knowledge post-intervention, thus a difference of 10.4% was achieved. Therefore, the difference between the two study groups was 32.5%.

Table 3  
Difference in Differences (DID) Analysis on Knowledge

	Pretest (%)		
		Posttest (%)	Change (%)
<b>Intervention group (Good Knowledge)</b>	18.4	61.3	42.9
<b>Comparison Group (Good Knowledge)</b>	14.8	25.2	10.4
<b>Difference in Difference (DID)</b>	3.6	36.1	32.5

Table 4 reveals that the respondents from the intervention group were 4.694 (95% CI: 3.356–6.566) times more likely to have a good knowledge of contraceptives than their counterparts in the comparison group. This was statistically significant ( $p = 0.000$ ).

Table 4  
Binary Logistic Regression for Knowledge between Study Groups, Post Intervention (n = 647)

Variables	B (Regression coefficient)	Adjusted Odds Ratio	95% C.I. for OR		p-value
			Lower	Upper	
<b>Study group</b>	1.546	4.694	3.356	6.566	< 0.001*
Intervention					
Comparison Ref					

Table 5 shows that at baseline there was no statistically significant difference between the two groups for attitudes towards contraceptives and the mean attitude score ( $p > 0.05$ ). However, at post-intervention there was a statistically significant difference in terms of attitude on the entire domain measured and the mean attitude score ( $p = 0.000$ ).

Table 5  
Pre and Posttest Attitude between the Study Groups

Pretest	Posttest							
	Intervention (n = 310)	Comparison (n = 337)	Test statistics	p- value	Intervention (n = 310)	Comparison (n = 337)	Test statistics	p-value
Variable	Mean (± SD)	Mean (± SD)			Mean (± SD)	Mean (± SD)		
The ideal interval between two consecutive pregnancies is 24 months	3.6 (1.3)	3.5 (1.4)	t = 0.263	0.793	4.2 (1.2)	3.5 (1.5)	t = 5.310	< 0.001**
Intention to have any pregnancy within one year	2.8 (1.4)	2.8 (1.7)	t = 0.144	0.886	2.1 (1.5)	2.8 (1.8)	t=-6.240	< 0.001**
Using postpartum contraceptive is shame	2.5 (1.5)	2.5 (1.3)	t = 0.078	0.938	2.3 (1.4)	2.6 (1.3)	t = 3.111	0.002*
PPFP use good for standards of living	3.5 (1.3)	3.3 (1.4)	t = 1.600	0.110	4.0 (1.1)	3.3 (1.4)	t=-7.192	< 0.001**
Small family size makes family happy	3.5 (1.5)	3.5 (1.4)	t = 0.707	0.480	4.2 (1.3)	3.4 (1.4)	t = 6.569	< 0.001**
Religion forbids contraceptive	3.1 (1.4)	3.2 (1.4)	t=-1.519	0.129	2.7 (1.4)	3.2 (1.4)	t = 5.259	< 0.001**
FP is good for mother and child health	3.5 (1.4)	3.6 (1.5)	t = 0.741	0.459	4.3 (1.2)	3.5 (1.5)	t=-6.652	< 0.001**
Discuss about FP with your partner	3.4 (1.4)	3.5 (1.3)	t = 0.668	0.504	4.1 (1.2)	3.4 (1.4)	t=-7.058	< 0.001**
Unmarried women can use contraceptive	2.6 (1.5)	2.5 (1.3)	t = 1.549	0.122	3.4 (1.2)	2.6 (1.3)	t = 8.811	< 0.001**
<b>Mean Attitude Score</b>	28.7 (3.9)	28.3 (5.1)	t = 1.213	0.226	30.4 (4.3)	28.2 (4.6)	t = 6.309	< 0.001**

Table 6 shows that in the intervention group, a lesser proportion of the respondents (57.1%) had positive attitude at baseline and a higher proportion (79.0%) had positive attitude post-intervention; thus a difference of 21.9% was gained. Regarding the comparison group, a lesser proportion of the respondents (53.7%) had a positive attitude at baseline and a greater proportion (58.2%) had a positive attitude post-intervention; thus a difference of 4.5% was registered. Therefore, the difference between the two study groups was 17.4%.

Table 6  
Difference in Differences (DID) Analysis on Attitude

	Pretest (%)		
		Posttest (%)	Change (%)
<b>Intervention group (Positive Attitude)</b>	57.1	79.0	21.9
<b>Comparison Group (Positive attitude)</b>	53.7	58.2	4.5
<b>Difference in Difference (DID)</b>	3.4	37.2	17.4

Table 7 reveals that the respondents from the intervention group were 2.712 times (95% CI: 1.913–3.843) more likely to have a positive attitude to contraceptive use than their counterparts in the comparison group. This was statistically significant ( $p = 0.000$ ).

Table 7  
Binary Logistic Regression for Attitude between Study Groups, Post Intervention (n = 647)

Variables	B (Regression coefficient)	Adjusted Odds Ratio	95% C.I. for OR		p-value
			Lower	Upper	
<b>Study group</b>	0.998	2.712	1.913	3.843	< 0.001**
Intervention					
Comparison Ref.					

According to Table 8, there was no statistically significant difference between the two groups in terms of intention to utilize contraceptives and the mean intention score at baseline ( $p > 0.05$ ). However, at post-intervention there was a statistically significant difference on intention on the entire domain measured and the mean intention score ( $p = 0.000$ ).

Table 8  
Pre and Posttest Intention between the Study Groups

Pretest					Posttest			
Variable	Intervention (n = 310)	Comparison (n = 337)	Test statistics	p- value	Intervention (n = 310)	Comparison (n = 337)	Test statistics	p-value
	Mean (± SD)	Mean (± SD)			Mean (± SD)	Mean (± SD)		
Getting pregnant again at this time could cause health problem for me	2.5 (1.0)	2.4 (1.3)	t = 1.120	0.263	3.8 (0.7)	2.3 (1.3)	t = -17.078	< 0.001**
Becoming pregnant now would be a serious problem for my family	2.0 (1.0)	1.9 (1.2)	t = 1.613	0.107	3.8 (0.6)	1.9 (1.2)	t = -25.370	< 0.001**
Getting pregnant again now could be dangerous to baby	2.4 (1.2)	2.3 (1.3)	t = 1.493	0.136	3.1 (1.3)	2.3 (1.3)	t = 8.062	< 0.001**
If I am sexually active and not using FP I'd likely get pregnant	3.2 (1.0)	3.3 (1.0)	t = -1.274	0.203	3.7 (0.8)	3.2 (1.0)	t = 7.589	< 0.001**
FPM are effective at preventing an unplanned pregnancy	3.3 (1.0)	3.4 (0.9)	t = 1.298	0.195	3.9 (0.5)	3.4 (0.9)	t = 7.911	< 0.001**
Delay getting pregnant again allows me to spend more time with baby	3.3 (1.0)	3.3(0.9)	t = 0.521	0.603	3.9 (0.3)	3.2 (1.0)	t = 12.149	< 0.001**
Using FPM to space my pregnancies will help me have a healthier....again	3.4 (1.0)	3.5 (0.9)	t = -1.295	0.205	3.9 (0.4)	3.5 (0.8)	t = 7.167	< 0.001**
Having children is expensive and FP allows families...care for them	3.4 (1.0)	3.4 (0.9)	t = -0.277	0.782	3.8 (3.6)	3.5 (0.9)	t = 5.962	< 0.001**
<b>Mean Intention Score</b>	23.5 (3.5)	23.5 (3.5)	t = -0.119	0.905	39.9 (2.9)	23.3 (3.6)	t = 25.704	< 0.001**

Table 9 reveals that in the intervention group, a lesser proportion of the respondents (29.0%) had low intention at baseline and a higher proportion (98.4%) had high intention post-intervention; thus a difference of 69.4% was gained. Regarding the comparison group, a higher proportion of the respondents (28.8%) had low intention at baseline and a lesser proportion

(20.5%) had low intention post-intervention; thus a difference of -8.3% was registered. Therefore, the difference between the two study groups was 77.7%.

Table 9  
Difference in Differences (DID) Analysis on Intention

	Pretest (%)		
		Posttest (%)	Change (%)
Intervention group (High Intention)	29.0	98.4	69.4
Comparison Group (High Intention )	28.8	20.5	-8.3
DID	0.2	77.9	77.7

Table 10 shows that the respondents from the intervention group were 36.419 times (95% CI: 22.305–59.464) more likely to have high intention to contraceptive use than their counterparts in the comparison group. This was statistically significant ( $p = 0.000$ ).

Table 10  
Binary Logistic Regression for Intention between Study Groups, Post Intervention (n = 647)

Variables	B (Regression coefficient)	Adjusted Odds Ratio	95% C.I. for OR		p-value
			Lower	Upper	
Study group	3.595	36.419	22.305	59.464	< 0.001**
Intervention					
Comparison Ref					

## Discussion

In this study, respondents' socio-demographic characteristics revealed that the two groups had similar characteristics and were therefore comparable. However, they were different in terms of ethnicity, marriage and employment ( $P < 0.05$ ). In terms of ethnicity, most of the respondents in the intervention group were from the Fulla tribe while Mandinkas form the majority in the comparison group. This concentration of tribes at different regions is not surprising and is in line with the results of the Gambia Population and Housing Census (2013)<sup>21</sup> which showed that Fullas are the majority tribe in the Upper River Region of The Gambia and Mandinkas form the major tribe in the Lower River Region respectively<sup>21</sup>. In any case, this tribe distribution pattern shows that the sample under study was representative. Married participants were higher in the intervention group compared to their counterparts in the comparison group. The health implications of married women could be to minimize multiple sexual partners outside marriage and to curb sexually transmitted diseases, safer healthy behavior and close source of support from spouses. Similar findings were reported among post-partum women (91%) in Ethiopia<sup>22</sup>, just as (93%) was also reported in a Malawi study<sup>23</sup>. Similarly, unemployment was higher in the intervention group compared to their counterparts in the comparison group. A possible explanation is that the comparison study site is more of a business center (transit point)

and has more infrastructural development than that of the intervention study site. This financial empowerment improves family stability, mental health and well-being.

## Participants' Knowledge, Attitude And Intention To Use Contraceptives

At six weeks post-intervention, contraceptive knowledge, attitude and intention were statistically significant between the two groups. The intervention group had higher contraceptive knowledge attitude and intention scores than the comparison group in all the subscales. Respondents in the intervention group were more knowledgeable, had a favourable attitude and higher intention than those in the comparison group ( $p < 0.05$ ). This is because the intervention group was exposed to PPFPP counselling and has shown that as contraceptive counselling increases, so does contraceptive knowledge attitude and intention and the likelihood that respondents would scale up contraceptive uptake better. This further indicates that the intervention offered to women in the intervention group was effective and thus supports the need to provide and sustain this counselling to postpartum women at the facility level. In addition, the implementation of the intervention in clinical practice will help to improve contraceptive knowledge, attitude, and intention among postpartum women and thus contraceptive uptake. It will equally help to inform and formulate policies and guidelines regarding postpartum family planning counselling.

The above findings on contraceptive knowledge are consistent with a Zimbabwean study on contraceptive counselling among HIV positive mothers, which showed that a significant difference in knowledge existed between the intervention and comparison groups at three months with 85.5% of the intervention, and 56.3% ( $P < 0.002$ ) in the comparison group.<sup>23</sup>

In addition, this finding on attitude falls in line with a study among postpartum women in Iran which revealed that the intervention group differed significantly from the comparison group in terms of contraceptives attitude ( $p < 0.05$ ) post-test.<sup>15</sup> Similarly, a study also revealed that most postpartum women had a favourable attitude towards contraceptives in Ethiopia.<sup>24</sup>

A previous study that evaluated intention in Uganda revealed that 71.4% of women in the comparison and 87% in the intervention groups had intention to use a modern contraceptive method following counselling on PPFPP and the difference was statistically significant.<sup>16</sup> One study from Pakistan found that at 8–12 weeks' postpartum all the women in the counselling group planned to use a modern contraceptive method compared with only a third in the comparison group.<sup>25</sup> Within the intervention study group, all the eight items of the intention subscale were found to be statistically significant ( $p < 0.05$ ). This shows that a significant gain in intention was registered from pretest to post-test.

## Conclusion

Effective family planning counselling is one of the cornerstones for increasing contraceptive acceptance and useduring the post-partum period. Findings of this study indicated that at post intervention participants had a better knowledge, more positive attitudes, and higher intentions towards contraceptive uptake. These were found to be statistically significant. The present study therefore highlights the need to conduct family planning counselling during the immediate postpartum period, particularly before the discharge of women from health facilities so as to ensure improved contraceptive uptake. This would curb unwanted pregnancies, unsafe abortions, improve birth spacing and reduce the high fertility rate and maternal and child morbidities and mortalities associated with short-birth intervals in the country. In addition, results of this study could also be used for institutional assessment and implementing reforms at the facility level to increase the uptake of PPFPP contraceptives. All these would improve maternal health outcomes and help to achieve the sustainable development goals 3 and 5.

## Recommendations

Based on the findings of this study, the following recommendations are made:

1. Effective and high-quality PPFPP counselling should be integrated in postpartum care before discharge in all levels of the health care system so as to improve contraceptive uptake and reduce the maternal mortality rate in the country.

2. Male involvement in reproductive health, especially PFP counselling (couple counselling) should be strengthened at all levels in order to improve contraceptive uptake and thus maternal health.
3. Improvement in girls' education and empowering them to make informed decisions in this part of the country should be a government priority.
4. Law enforcement on the prohibition of early child marriage should be strengthened so as to give girls the opportunity for higher education and to empower them economically.

### **Limitations of the Study**

1. The interviewers also served as the family planning counsellors due to limited staff on the ground.
2. Participant tracing made the posttest and follow-up too difficult due to the use of nicknames by participants in the community, thus limiting the posttest numbers. Similarly, the use of wrong addresses made the posttest phase and follow-up a real challenge in determining the posttest among postpartum women. This could be accounted for by the fact that clients coming from the neighbouring villages in Senegal do attend antenatal clinic and delivery sessions in these facilities for safe delivery and to enjoy the free maternal health services offered in The Gambia, after which they return to their places of origin.

## **Declarations**

### **Ethical Approval and Consent to Participate**

Ethical approval was granted by the Research and Ethics Committee, School of Basic Medical Sciences, College of Medicine, University of Benin (CMS/REC/2017/017); The Gambia Government/Medical Research Council Laboratories Joint Ethics Committee (R017016Av1.1). The informed consent was read to participants in their identified local languages and later appended their thumbprints to the consent form indicating approval. This was allowed by the above ethics committees, since the majority could neither read nor write in English and could not sign the consent form. Participants were assured that participation was voluntary, and they had the right to withdraw from the study at any time. This would not affect their care or services offered. Data was pooled and used only for the study. No written informed consent was obtained from a parent or guardian for participants under 16 years old.

### **Consent for Publication**

No personal data were recorded for any participant. The data were treated in an aggregate and anonymous manner. All the authors consented for this paper to be published

### **Availability of Data and Materials**

The datasets used to analyze this study are available from the corresponding author on genuine request.

### **Competing Interests**

The authors declare that they have no competing interests.

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### **Authors' Contributions**

JSS conceptualized the topic, wrote the proposal and draft report. FOA and HOO participated in data analysis and proof-read the final report. All the authors read and approved the manuscript for publication. '

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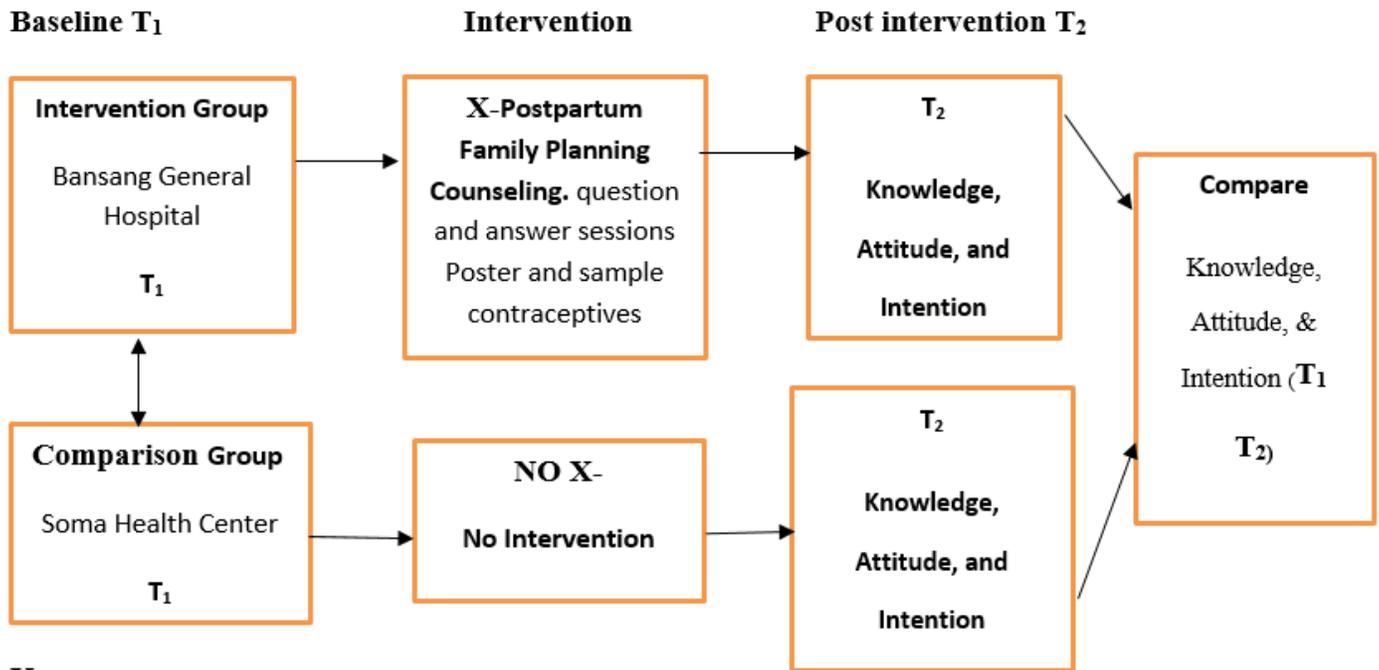
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## Figures

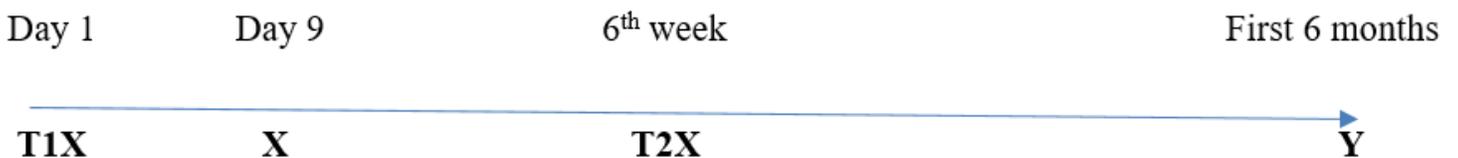


**Key:**

- T<sub>1</sub>** = Pre – intervention test (pretest)
- X** = Intervention (Postpartum Family Planning Counseling)
- NO X** = No Intervention
- T<sub>2</sub>** = Post intervention test

Figure 1

Study Design



**Key:**

- T<sub>1</sub>** = Pre – intervention test (pretest)
- X** = Intervention
- T<sub>2</sub>** = Post intervention test (post-test)
- Y** = Primary Outcome of interest

Figure 2

Intervention Plan.

## Supplementary Files

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