Couple Counsellling on Birth Preparedness and Pregnancy Outcomes in a Family Practice Setting in Northern Nigeria

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Abstract

Background: Birth preparedness and complication readiness (BPCR) is an evidence- based approach to reduce delays in accessing skilled maternal and neonatal interventions to reduce morbidity and mortality. Couple counselling aims to involve the partners in joint healthcare decision making. The study set out to determine what effect couple counselling on BPCR had on feto- maternal outcomes in pregnant women.
Methodology: A total of 102 primigravidae were randomized into the intervention group (who had focused BPCR counselling with their partners) and the control group, who had treatment as usual (TAU) ie usual antenatal care. They were followed up till delivery. Data were collected using interviewer administered structured questionnaires and a review of medical records. The primary maternal outcomes were the mode of delivery and occurrence of perinatal complications, while secondary outcomes were the length of hospital stay and presence of maternal mortality. The primary fetal outcomes were the gestational age at birth, and the APGAR score while secondary outcomes were the need for hospital admissions and neonatal mortality. Data were analyzed using SPSS version 25. Comparative analyses were performed using Chi-square test and Fisher's exact test.
Results: The mean ages of the study participants were 22.89 3.7years for the intervention group, and 22.62 3.9years for the control group. Although more participants in TAU had unfavourable maternal outcomes such as delivering at home (p= 0.653), having caesarean delivery (p= 0.355), post-partum haemorrhage (p= 0.319), prolonged hospital stay (p= 0.116), only genital tract laceration (p= 0.007) was statistically significant. There was no maternal mortality.
The foetal complications such as LBW (p= 0.041), neonatal admissions (p= 0.041), and pre- term delivery (p= 0.007) were also more in the TAU group as compared to the intervention group. There was one perinatal mortality from the TAU group, and none from the intervention group.
Conclusion: Couple counselling on BPCR significantly improved maternal and foetal pregnancy outcomes. A structured birth preparation counselling with involvement of the male partners should be integrated into routine antenatal care.

Keywords: Couple Counselling, Birth Preparedness, Primigravidae, Maternal Outcomes, Foetal Outcomes, Family practice.

Maternal and neonatal health remain critical public health concerns, particularly in sub-Saharan Africa, where maternal and neonatal mortality rates are among the highest globally.[1,2] Primigravidae, women experiencing pregnancy for the first time, are especially vulnerable due to their limited experience with pregnancy and childbirth. This vulnerability is further compounded by inadequate antenatal care, poor birth preparedness, and delayed decision-making during emergencies, which are prevalent in low-resource settings such as Northwest Nigeria.

Birth preparedness and complication readiness (BPCR) is an evidence-based approach to reducing delays in accessing skilled care during childbirth. BPCR involves creating a plan for childbirth, identifying skilled birth attendants, selecting delivery locations, saving funds, arranging transportation, and recognizing danger signs.[3] Despite its proven benefits, the uptake of BPCR practices remains suboptimal in many parts of Nigeria, particularly among first-time mothers. This is often due to sociocultural norms, limited knowledge, and insufficient involvement of male partners in antenatal care.[4,5,6]

Couple counselling has been identified as a promising intervention to address these challenges.[7] By involving both partners in antenatal education and discussions, couple counselling enhances shared decision-making, promotes better preparation for childbirth, and facilitates timely utilization of healthcare services.[8,9] Studies suggest that engaging male partners in BPCR interventions can significantly improve maternal and neonatal outcomes by fostering supportive environments and reducing delays in seeking care during emergencies.[5,11,12,13]

This study focused on the effect of couple BPCR counselling on pregnancy outcomes among Primigravidae in Ahmadu Bello University Teaching Hospital, Zaria, Northwest Nigeria. Primigravidae are a particularly important group for intervention, as positive experiences during their first pregnancy can set the foundation for improved maternal health practices in subsequent pregnancies. By comparing pregnancy outcomes among Primigravidae who received couple counselling with those who did not, this study aimed to provide evidence on the effectiveness of this intervention in

improving maternal and neonatal health in low-resource settings.

Methodology

Study Setting: The study was conducted at the Family Medicine antenatal clinic of Ahmadu Bello University Teaching Hospital (ABUTH) Zaria, Northwest Nigeria, over a period of six months. It is a facility that provides comprehensive antenatal care services, including birth preparedness counselling, and it is a referral center for primary and secondary public and private health institutions in the region.

Study Design: The study was a randomized controlled trial aimed to evaluate the effectiveness of couple counselling on birth preparedness and pregnancy outcomes among Primigravidae. Participants were randomized into two groups: the intervention group that were counselled with their partners on birth preparedness and complication readiness, and the control group who had treatment as usual (TAU).

Study Protocol

A total of 102 consenting primigravidae between the ages of 15-45 years were recruited and randomized into the two groups. Women with high-risk pregnancies were excluded from the study.

The sample size was determined using the formula for comparing differences in proportions for interventional studies.[14]

$$N = \frac{[A+B]*[P_1(1-P_1)+P_2(1-P_2)]}{(P_1 - P_2)^2}$$

N= minimum required sample size in each group.

P_1 = Prevalence in control group (Proportion of pregnant women who had favourable pregnancy outcome) from a previous study[15] = (74.8%)

P_2 = Prevalence in intervention group (P_1 + 0.2) = 0.75 + 0.2= 0.95

Using minimum effect size for proportions (Cohen h) of 0.2. [16]

$B = Z\beta = Z_{0.2} = 0.842$ (from Z table) at desired power at 80%

$A = Z\alpha/2 = Z_{0.05/2} = Z_{0.025} = 1.96$ (from Z table) at type 1 error of 5% for a two tailed test

Randomization

A computer was used to randomly allocate participants into the two groups; I and C. Opaque envelopes were numbered one to 102 and the randomly generated letters (I or C) were placed into them using the computer sequence. As each participant was recruited, she picked an envelope which revealed the group she belonged to. The code I and C was labelled on their records depending on their group. A register was also opened for all participants and was crossed checked before the participant was enlisted to avoid double enrollment.

Intervention Guide: The WHO Counselling for Maternal and Newborn health: A handbook for building skills was used for counseling. Participants in the study group had 3 sessions of couple counselling, with each lasting 30 minutes. The first session of counselling involved orientation and provision of birth and emergency preparedness card for the study participants. They were also encouraged to come with their partners for subsequent visits. The second session involved an interactive session with participants and their partners on birth and emergency planning and signs of labour. The third session was discussion on danger signs in pregnancy, labour and the danger sign for mother and baby during the postpartum period. Postnatal care of mother and baby was also discussed in this session. At each session, the couple were asked to come with their birth and emergency preparedness card to see what progress had been made in filling the card and discussion done in previous sessions were re- emphasized.

The control group had their routine antenatal clinic consultations and general health counselling. Both groups were followed up till delivery, and the pregnancy outcome variables were thus:

- **Maternal Outcomes:** Place of birth, mode of delivery, postpartum haemorrhage, genital laceration, and duration of hospital admission.
- **Foetal Outcomes:** Birth weight, Apgar score, neonatal admissions, gestational age at birth, and perinatal mortality.
- **Overall Pregnancy Outcomes:** Categorized as favourable or unfavourable.

Data Collection and analysis: Data was collected using structured questionnaires and a review of medical records. The questionnaire captured:

- Sociodemographic characteristics.
- Details of ANC attendance and counselling sessions.
- Pregnancy outcomes, including maternal and foetal outcomes.

Medical records were reviewed to validate key variables such as gestational age at birth, birth weight, Apgar scores, and delivery complications.

Data were analyzed using SPSS version 25. Descriptive statistics, such as frequencies and percentages, were used to summarize categorical variables. Comparative analyses were performed using Chi-square test for categorical variables, with the Fisher's exact test for small sample sizes. A p-value of <0.05 was considered statistically significant.

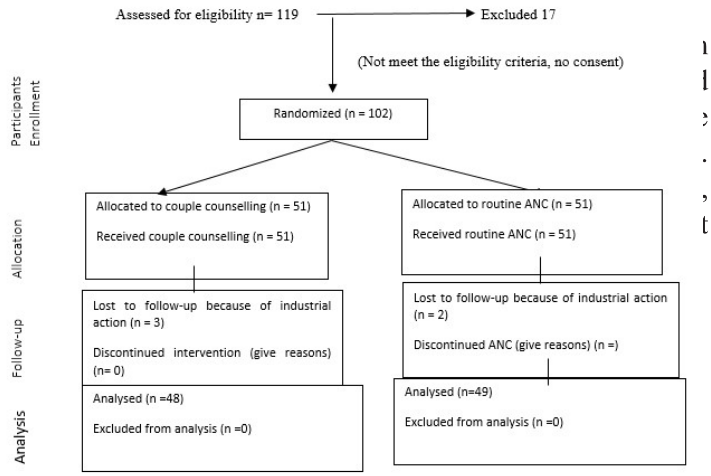

Figure1: CONSORT Flowchart for client selection, allocation, follow up and analysis

Results:

Of the 102 participants recruited (51 per group), data from 97 participants (48 in the study group and 49 in the control group) were analyzed, with an attrition rate of 4.9% due to five participants lost to follow up.

Most participants in both groups were aged 20–24 years (study: 54.3%; control: 59.2%), with mean ages of 22.89 ± 3.7 years for the study group and 22.62 ± 3.9 years for the control group. A smaller proportion (14.3%) in each group were under 20 years, while very few participants were 30 years or older (study: 4.2%; control: 6.1%). All participants in the study group were married, compared to 98% in the control group. The majority of participants were unemployed (study: 72.9%; control: 73.5%). Most participants (94.8%) in both groups had at least secondary education. The dominant religion was Islam (study: 91.7%; control: 89.8%), followed by Christianity (study: 8.3%; control: 10.2%). The Hausa tribe was predominant (75.3%) in both groups, with other tribes (e.g., Bajju, Nupe, Kataf, Igala, Ijaw) representing 9.3%. Only small percentage of participants earned less than ₦30,000 (6.2%), with most earning above this threshold. Monogamous families were more common in both groups (study: 83.3%; control: 75.5%).

Partners to Participants: About 74.2% of partners in both

Variables	Study group Frequency (%)	Control group Frequency (%)	X^2	p-value
AGE GROUP				
<20	7 (14.5)	7 (14.3)		
20-24	26 (54.3)	29 (59.2)	0.853[F]	0.851
25-29	13 (27.1)	10 (20.4)		
30 and above	2 (4.2)	3 (6.1)		
MARITAL STATUS				
Single	0 (0)	1 (2)	0.990[F]	1.000
Married	48 (100)	48 (98)		
OCCUPATION				
Civil Servant	3 (6.3)	4 (8.1)		
Self employed	10 (20.8)	9 (18.4)	0.278[F]	1.000
Unemployed	35 (72.9)	36 (73.5)		
FAMILY TYPE				
Monogamous	40 (83.3)	37 (75.5)	0.907	0.242
Polygamous	8 (16.7)	12 (24.5)		
EDUCATIONAL STATUS				
Tertiary	22 (45.8)	20 (40.8)	0.444[F]	0.844
Secondary	24 (50.0)	26 (53.1)		
Primary	2 (4.2)	3 (6.1)		
RELIGION				
Islam	44 (91.7)	44 (89.8)	0.101[F]	0.513
Christianity	4 (8.3)	5 (10.2)		
TRIBE				
Hausa	34 (70.8)	39 (79.5)		
Yoruba	4 (8.4)	4 (8.2)		
Fulani	5 (10.4)	2 (4.1)	1.765[F]	0.663
Others	5 (10.4)	4 (8.2)		
FAMILY INCOME				
<30000	3 (6.3)	3 (6.1)		
30000 to 74999	22 (45.8)	21 (42.9)	0.304[F]	0.988
75000 to 100000 [150]	11 (22.9)	13 (26.5)		
>100000	12 (25)	12 (24.5)		

Variables	Study group Frequency (%)	Control Frequency (%)	X^2	p-value
EDUCATIONAL STATUS				
Tertiary	35 (72.9)	37 (75.5)		
Secondary	13 (27.1)	11 (22.5)	1.162[F]	0.728
Primary	0 (0)	1 (2.0)		
OCCUPATION				
Civil servant	16 (33.3)	13 (26.5)	0.535	0.305
Self employed	32 (66.7)	36 (73.5)		
AGE OF PARTNERS				
Range	26-45 (years)	824-60(years)		
Mean	33.8	34.7	8.069	0.684
SD	4.7	6.1		

SD: standard deviation, F: Fischer's exact test, X^2: Chi-square, p-value ≤ 0.05, $n_1=48$, $n_2=49$ %: percentage

Table III illustrates that among the maternal outcomes, statistically significant difference between the 2 groups was

Variables	Maternal Outcome		Test Statistic	
	Favourable (n, %)	**Unfavourable** (n, %)	X^2	p-value
Place of Birth				
Counselled	39 (81.2%)	9 (18.8%)	0.203	0.653
Not Counselled	38 (77.6%)	11 (22.4%)		
Mode of Delivery				
Counselled	44 (91.7%)	4 (8.3%)	0.855[F]	0.355
Not Counselled	42 (85.7%)	7 (14.3%)		
Postpartum Haemorrhage				
Counselled	47 (92.9%)	1 (2.1%)	1.001[F]	0.319
Not Counselled	46 (93.9%)	3 (6.1%)		
Genital Laceration				
Counselled	41 (85.4%)	7 (14.6%)	**7.233**	**0.007**
Not Counselled	30 (61.2%)	19 (38.8%)		
Duration of Admission				
Counselled	35 (72.9%)	4 (8.3%)	2.473	0.116
Not Counselled	29 (59.2%)	9 (18.4%)		

F: Fisher's Exact Test; X²: Chi-Square Test; Significant p-value: < 0.05; n = 97

A statistically significant difference was observed in the birth weight, neonatal admissions, perinatal mortality and gestational age (GA) at birth of babies born to participants that received couple counselling as compared to those that did not receive. Table IV shows that participants in the control group have more babies with low birth weight (p=0.041), neonatal admission (p=0.041) and have preterm and post term

Variables	Foetal Outcome	Test Statistic		
	Favorable (n, %)	**Unfavorable** (n, %)	**X²**	**p-value**
Birth Weight				
Counselled	46 (95.8%)	2 (4.2%)	**4.166**	**0.041**
Not Counselled	39 (83.0%)	8 (17.0%)		
APGAR Score				
Counselled	47 (92.9%)	1 (2.1%)	1.833	0.176
Not Counselled	45 (91.8%)	4 (8.2%)		
Neonatal Admissions				
Counselled	45 (93.7%)	3 (6.3%)	**4.188**	**0.041**
Not Counselled	39 (79.6%)	10 (20.4%)		
Gestational Age (GA) at Birth				
Counselled	48 (100.0%)	0 (0.0%)	**7.390F**	**0.007**
Not Counselled	42 (85.7%)	7 (14.3%)		
Perinatal Mortality				
Counselled	48 (100.0%)	0 (0.0%)	**4.087F**	**0.043**
Not Counselled	45 (91.8%)	4 (8.2%)		

GA: Gestational Age; F: Fisher's Exact Test; X²: Chi-Square Test; Significant p-value: < 0.05

The study participants that received couple birth preparedness counselling had more favourable pregnancy outcome than those that had routine antenatal care. Table V shows the

Couple Counselling	Pregnancy Outcome		Test Statistic	
	Favourable (n, %)	**Unfavourable** (n, %)	**X²**	**p-value**
Counseled	30 (62.5%)	18 (37.5%)		
Not Counseled	11 (22.5%)	38 (77.5%)	15.940	0.000

Table V: Effect of Couple Counselling on the Overall Pregnancy Outcome of Study Participants

X²: Chi-Square Test; Significant p-value: < 0.05

Discussion

This study assessed the effect of couple counselling on birth preparedness and its impact on pregnancy outcomes among Primigravidae in Northwest Nigeria. The findings underscore the importance of engaging both partners in antenatal care, as couple counselling demonstrated significant improvements in maternal and foetal outcomes compared to standard care. The study and control groups were similar in sociodemographic characteristics, ensuring comparability and strengthening the validity of the findings. Most participants were in the age range 20–24 years, unemployed and from monogamous families. Educational attainment and family income were also comparable, suggesting that socioeconomic factors were unlikely to influence the observed differences in outcomes.

Couple counselling significantly reduced the incidence of genital lacerations, a common complication in Primigravidae. Although no previous literature was found to support this finding, it may be due to the intervention, as study participants who received counselling are more likely to be informed about birth plans and expectations during labour and may be more inclined to cooperate with the birth attendant, especially during the second stage of labour. However, no significant differences were observed between the two groups in place of birth, mode of delivery, or postpartum haemorrhage, possibly reflecting the high-quality care provided in the study setting.

A study from Ogun state, Nigeria found association between higher level of BPCR with better utilization of Skilled birth attendants (SBA) and better delivery outcomes.[14] This is consistent with our study as counselling likely increased preparedness level which increased favourable processes (facility delivery, fewer complications) and in turn improved pregnancy outcomes.

Our study found a significant improvement in foetal outcomes such as birth weight, gestational age at birth and reduced neonatal admissions. Previous studies have highlighted that (BPCR) which commonly include counselling about danger signs, making birth plans, are associated with a modest but consistent reduction in neonatal mortality and morbidities.[15] Larger cluster trial conducted in Pakistan reported a 25% reduction in neonatal mortality.[16] Our report of a significant higher effect size may be because of our lower sample size as compared to those community-based studies. The absence of perinatal mortality in the counselled group underscores the effectiveness of targeted interventions in mitigating preventable adverse outcomes.

The counselled group had significantly more favorable overall pregnancy outcomes than the non-counselled group. This suggests that involving partners in antenatal care enhances support, reduces maternal stress, and improves adherence to healthcare recommendations. The findings support the integration of couple counselling into routine antenatal care to optimize outcomes for both mother and child. Our finding was similar to a northern Nigerian RCT of couple antenatal counselling that led to improved postpartum contraceptive uptake in the intervention as compared to controlled group.[17] This study adds additional evidence that couple counselling may also impact birth and fetal outcomes not just postpartum behaviour.

Conclusion

Birth preparedness and couple counselling improved pregnancy outcomes. There was a statistically significant difference between the study and control group in the occurrence perineal laceration, neonatal admissions, low birth weight, perinatal mortality and gestational age at delivery.

Limitations

This study's strengths include its randomized controlled design and focus on a high-priority population (Primigravidae). However, potential limitations include recall bias from self-reported data and the single-center setting, which may limit generalizability. Further multicenter studies are recommended to validate these findings across diverse settings.

Implications for Practice: The findings advocate for policies promoting male involvement in maternal health, particularly through couple counselling. Healthcare providers should prioritize birth preparedness education during antenatal visits to empower couples and improve pregnancy outcome.

Conflict of Interest: Nil

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Authors Contributions

Nuhu MK- Conceptualization, literature search, Design, Data collection, data analysis and interpretation, manuscript preparation.

Ibrahim BY- Conceptualization, Design, Data analysis and interpretation, critical review of manuscript, approved final manuscripts.

Ibrahim OA- Conceptualization, Design, Data analysis and interpretation, critical review of manuscript, approved final manuscripts.

Babandi ZS- Intellectual contribution, Data analysis and interpretation, critical review of manuscript.

Abdulrasheed MM- Intellectual contribution, Data analysis and interpretation, critical review of manuscript.

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