

Birth Preparedness and Complication Readiness Among Pregnant and Recently Delivered Women in Rural Etawah, Uttar Pradesh: A Community-Based Cross-Sectional Study

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Background: Birth preparedness and complication readiness (BPCR) is a cornerstone strategy for reducing maternal mortality by mitigating delays in care-seeking, transport, and receipt of skilled obstetric services. Despite national-level improvements under programs such as Janani Suraksha Yojana (JSY) and National Rural Health Mission (NRHM), Uttar Pradesh continues to bear a disproportionately high burden of maternal deaths. District Etawah in rural Uttar Pradesh lacks local evidence on BPCR status and its determinants, a gap that impedes targeted health system interventions.

Objectives: To determine the proportion of women with favorable BPCR and to identify sociodemographic, obstetric, and informational factors significantly associated with it among pregnant and recently delivered women in rural Etawah, Uttar Pradesh.

Methods: A community-based cross-sectional study was conducted from 15 September to 15 November 2023 in the rural field practice area of Uttar Pradesh University of Medical Sciences (UPUMS), Saifai, Etawah. A total of 250 eligible participants — comprising pregnant women with gestational age >28 weeks and recently delivered women — were enrolled using a time-bound consecutive sampling method. Data were collected through face-to-face structured interviews. BPCR was assessed using a pre-defined checklist. Favorable BPCR was defined as having fulfilled the requisite preparedness criteria. Association between BPCR and study variables was assessed using the chi-square test, with $p < 0.05$ considered statistically significant.

Results: Of 250 participants, the majority (95.6%) were aged 18–34 years. Most women belonged to below-poverty-line (BPL) households (54.4%), had ≥ 4 antenatal care (ANC) visits (76.8%), and were attended by government health facilities (54.0%). Awareness of six key obstetric danger signs was present in only 37.6% of participants. Favorable BPCR was recorded in merely 45 women (18.0%), denoting a critically low level of birth preparedness. Statistically significant associations with favorable BPCR were identified for maternal education ($\chi^2=4.33$, $p < 0.05$), socioeconomic status ($\chi^2=17.12$, $p < 0.001$), number of ANC visits ($\chi^2=13.90$, $p < 0.001$), and awareness of danger signs ($\chi^2=26.26$, $p < 0.001$).

Conclusion: BPCR status among rural women in Etawah is critically low — substantially below estimates reported from other Indian settings. Maternal literacy, economic empowerment, adequate ANC utilization, and danger sign awareness are key modifiable determinants. Immediate strengthening of BPCR counseling during ANC contacts, with intensified outreach by ASHA and ANM workers targeting illiterate and economically marginalized women, is imperative.

Introduction

Maternal mortality remains one of the most pressing public health challenges in low- and middle-income countries. Globally, an estimated 287,000 maternal deaths occurred in 2020, with 99% concentrated in developing nations and approximately one-third in South Asia alone.¹ India, despite remarkable reductions over the past

two decades, with the Maternal Mortality Ratio (MMR) declining from 254 per 100,000 live births in 2004–06 to 97 in 2018–20, continues to grapple with unacceptably high maternal mortality, particularly in the Empowered Action Group (EAG) states.^{2,3} Uttar Pradesh stands among the highest-burden states, with an MMR substantially exceeding the national average, driven by complex interactions of poverty, poor healthcare infrastructure,

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and low maternal health literacy.⁴

A preponderance of maternal deaths are attributable to the 'Three Delays' framework conceptualized by Thaddeus and Maine: delay in recognizing danger and deciding to seek care, delay in reaching an appropriate facility, and delay in receiving adequate treatment at the point of care.⁵ Birth preparedness and complication readiness (BPCR) was developed as a programmatic strategy specifically targeting all three phases of this framework. BPCR, as defined by JHPIEGO and endorsed by the World Health Organization as an integral component of focused antenatal care, encompasses a cluster of preparatory actions including: identification of a delivery facility, arrangement of finances, designation of a birth companion, organization of transport, identification of a compatible blood donor, and acquisition of knowledge about key obstetric danger signs.^{6,7} By enabling women and their families to anticipate and prepare for both normal delivery and potential emergencies, BPCR functions as a preventive bridge between community-level awareness and skilled institutional care.

India has instituted several policy instruments aimed at improving maternal preparedness. The Janani Suraksha Yojana (JSY), launched in 2005, incentivizes institutional deliveries among economically vulnerable women, particularly in low-performing states.⁸ The NRHM/NHM has deployed Accredited Social Health Activists (ASHAs) one for every 1,000 rural population, as community health promoters tasked with counseling women on BPCR, identifying danger signs, and facilitating access to antenatal and delivery services.⁹ Auxiliary Nurse Midwives (ANMs), stationed at sub-centers serving approximately 5,000 rural population, provide essential obstetric care and are expected to reinforce BPCR messages at every antenatal contact.¹⁰ Despite these frameworks, evidence from across India suggests that BPCR uptake remains uneven and inadequate, particularly in rural Uttar Pradesh.

The sociocultural milieu of Uttar Pradesh, marked by patriarchal norms, female illiteracy, and poverty-related barriers to healthcare-seeking, makes BPCR achievement particularly challenging in this setting. Women frequently have limited autonomy regarding maternal healthcare decisions, adversely affecting the timely utilization of obstetric services.¹¹ Etawah district reflects many of the broader maternal health challenges observed across EAG states.

Despite growing national evidence on BPCR, the published literature from Uttar Pradesh is sparse, and

district-specific data from Etawah are virtually absent. Without locally contextualized data, it is not possible to identify the specific barriers that impede preparedness or to design targeted quality improvement interventions for the primary healthcare system. This study was, therefore, planned to generate baseline evidence on the current status of BPCR and its modifiable determinants among pregnant and recently delivered women in rural Etawah.

Objectives

Primary Objective

To determine the proportion of pregnant and recently delivered women with favorable birth preparedness and complication readiness (BPCR) in the rural field practice area of UPUMS, Saifai, Etawah.

Secondary Objectives

- To assess the sociodemographic and antenatal factors associated with favorable BPCR.
- To describe the level of awareness of key obstetric danger signs among study participants.
- To assess awareness of key government maternal health schemes (JSY) and BPCR information coverage among participants.

Methods

Study Design and Setting

A community-based cross-sectional study was conducted from 15 September 2023 to 15 November 2023 (two months) in the rural field practice area of the Department of Community Medicine, Uttar Pradesh University of Medical Sciences (UPUMS), Saifai, Etawah, Uttar Pradesh, India. Etawah is a district in western Uttar Pradesh with a predominantly rural population. UPUMS, Saifai, serves as a tertiary care and teaching hospital with an established rural health training center covering adjacent villages, providing an appropriate surveillance platform for community-based maternal health research.

Study Population, Inclusion and Exclusion Criteria

The target population comprised pregnant women with a gestational age of more than 28 weeks and women who had delivered within the preceding 6 months (recently delivered), residing in the rural field practice area during the study period. The lower gestational cut-off of 28 weeks was chosen to ensure that participants had adequate exposure to ANC counseling and a reasonable opportunity to have implemented all components of BPCR.

Women currently in active labor, those who were mentally or physically incapable of providing a structured interview, and women who declined informed consent were excluded from the study.

Sample Size and Sampling Method

A time-bound consecutive sampling strategy was employed. All eligible women — pregnant (≥ 28 weeks gestation) or recently delivered (within 6 months) — attending the field practice area or identified through house-to-house visits during the two-month data collection window were approached for enrolment. A total of 252 women met the eligibility criteria during this period; after applying exclusion criteria and rounding, 250 participants were ultimately enrolled as the final study sample. No prior minimum sample size calculation was performed, as the time-bound approach was adopted in view of logistical and resource constraints; however, the resulting sample of 250 provides adequate power for proportional estimation and chi-square analyses.

Data Collection Instrument and Process

A pre-tested, structured interview schedule was developed in Hindi (the local language) and administered face-to-face by trained field investigators. The schedule captured: (i) sociodemographic characteristics including age, religion, education, occupation, husband's education, and economic status (based on BPL/APL ration card status as a proxy indicator of poverty); (ii) obstetric history including gravidity/parity; (iii) antenatal care utilisation (number of ANC visits, source of ANC — government vs. private facility); (iv) awareness of six key obstetric danger signs across pregnancy, intrapartum, and postpartum phases; (v) awareness of JSY and other government maternal health schemes; (vi) BPCR-related factors including receipt of adequate BPCR information from health workers, and family discussion regarding birth preparedness; and (vii) the primary decision-maker in the household regarding healthcare-seeking.

The interview schedule was pre-tested among a pilot sample of 20 women outside the study area to check for clarity, comprehension, and face validity prior to field implementation.

Operational Definitions

Favorable BPCR: BPCR was assessed using a checklist adapted from JHPIEGO-recommended indicators. The checklist included seven components: identification of a delivery facility, arrangement of transport, saving money for delivery/emergency care, identification of a blood donor, identification of a skilled birth attendant,

arrangement of a birth companion, and awareness of key obstetric danger signs. Each component was assigned a score of one if present and zero if absent. Women fulfilling at least four of the seven components were classified as having favorable BPCR.⁶

Awareness of key danger signs: A woman was considered adequately aware if she could spontaneously recall key danger signs during pregnancy, labour/childbirth, and the postpartum period. Women who could correctly identify signs across all three phases were classified as having comprehensive danger sign awareness.

Adequate information on BPCR: A woman who reported having received BPCR counseling from a healthcare provider (ASHA, ANM, or doctor) was classified as having received adequate information.

Socioeconomic status: Categorized based on the type of ration card held by the household below poverty line (BPL) vs. above poverty line (APL).

Statistical Analysis

Data were entered and analyzed using the Statistical Package for Social Sciences (SPSS), Version 22.0. Descriptive statistics, frequencies and percentages for categorical variables are presented in tabular form. The chi-square (χ^2) test was applied to examine the association between BPCR status and each study variable. A two-sided *p-value* of <0.05 was considered statistically significant. No regression analysis was performed, as the study design and sample size were intended for descriptive and associative analysis at the bivariate level.

Ethical Considerations

The study was conducted after obtaining requisite institutional ethical approval from the Institutional Ethics Committee of UPUMS, Saifai. Written informed consent was obtained from all participants in the local language (Hindi) prior to data collection. Participants were assured of confidentiality and voluntary participation, with freedom to withdraw at any point without consequence. No personally identifiable information is reported in this manuscript.

Results

Sociodemographic Profile of Study Participants

A total of 250 women were enrolled in the study. The sociodemographic characteristics are summarised in Table 1. The overwhelming majority of participants ($n=239$, 95.6%) were in the reproductive age group of 18–34 years; only 11 (4.4%) were aged above 35 years. In terms of

Table 1: Sociodemographic characteristics of study participants (n = 250)

Variable	Category		
Age (years)	18–34 years	239	95.6
	>35 years	11	4.4
Religion	Hindu	135	54.0
	Others (Muslim/Christian)	115	46.0
Study status	Recently delivered (postnatal)	176	70.4
	Currently pregnant (≥ 28 weeks)	74	29.6
Parity	Primigravida/Primipara	134	53.6
	Multigravida/Multipara	116	46.4
Education (woman)	Literate	186	74.4
	Illiterate	64	25.6
Education (husband)	Literate	191	76.4
	Illiterate	59	23.6
Occupation (woman)	Unemployed/Homemaker	200	80.0
	Employed	50	20.0
Economic status	Above poverty line (APL)	114	45.6
	Below Poverty Line (BPL)	136	54.4

Table 2: Distribution of antenatal and obstetric factors among study participants (n = 250)

Variable	Category		
ANC visits	<4 visits	58	23.2
	≥ 4 visits	192	76.8
Awareness of 6 key danger signs	Yes	94	37.6
	No	156	62.4
Source of ANC	Government facility	135	54.0
	Private facility	115	46.0
Awareness of JSY benefits	Aware	121	48.4
	Not aware	129	51.6
Healthcare decision by woman	Yes	224	89.6
	No	26	10.4
Companion for ANC visits	Yes (accompanied)	28	11.2
	No (unaccompanied)	222	88.8

Table 3: Distribution of BPCR and related indicators among study participants (n=250)

BPCR Indicator	Response		
Family discussion on BPCR	Yes	108	43.2
	No	142	56.8
Received adequate information on BPCR	Yes	103	41.2
	No	147	58.8
Favourable BPCR status	Yes (Favourable)	45	18.0
	No (Unfavourable)	205	82.0

religion, 135 (54.0%) women identified as Hindu, and the remaining 115 (46.0%) belonged to other faiths (Muslim, Christian, or other). Of the total, 176 (70.4%) were recently delivered women and 74 (29.6%) were currently pregnant with gestational age ≥ 28 weeks.

Regarding obstetric history, 134 women (53.6%) were primigravida and the remaining 116 (46.4%) were multigravida. In terms of maternal education, 186 (74.4%) were literate and 64 (25.6%) were illiterate. Husband's literacy was slightly higher, with 191 (76.4%) being literate and 59 (23.6%) illiterate. The majority of women (n=200, 80.0%) were engaged as homemakers, while 50 (20.0%) were employed outside the home. In terms of household economic status, 136 women (54.4%) belonged to BPL households, while 114 (45.6%) were from APL households.

Antenatal Care Utilization and Obstetric Factors

Antenatal and obstetric factors are presented in Table 2. Satisfactory ANC utilization was recorded among 192 participants (76.8%) who had completed four or more ANC visits; however, 58 women (23.2%) had attended fewer than four visits, falling below the minimum recommended contact frequency. Among all participants, 135 (54.0%) utilized government facilities for ANC, while 115 (46.0%) attended private facilities. Awareness

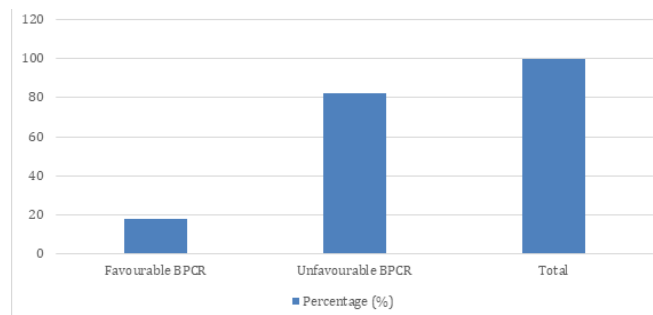
**Figure1:** Distribution of BPCR Status Among Pregnant and Recently Delivered Women

Table 4: Association of BPCR with key sociodemographic and antenatal factors (n=250)

<i>Factor</i>	<i>Category</i>	<i>Favourable BPCR (n)</i>	<i>Unfavourable (n)</i>	<i>Total</i>	χ^2	<i>df</i>	<i>p-value</i>
Education (woman)	Literate	39	147	186	4.33	1	<0.05*
	Illiterate	6	58	64			
Socioeconomic status	APL	8	106	114	17.12	1	<0.001*
	BPL	37	99	136			
ANC visits	≤4 visits	20	38	58	13.90	1	<0.001*
	≥5 visits	25	167	192			
Danger sign awareness	Aware (≥6 signs)	32	62	94	26.26	1	<0.001*
	Unaware (<6 signs)	13	143	156			

*Statistically significant ($p < 0.05$); χ^2 = Chi-square statistic; df= degrees of freedom; APL= Above Poverty Line; BPL= Below Poverty Line; ANC= Antenatal Care

Table 5: Comparison of Favourable/Optimal BPCR with Selected Indian Studies

<i>Study (Author, Year)</i>	<i>Setting</i>	<i>Sample size</i>	<i>Favourable/Optimal BPCR (%)</i>
Present study (Sahu et al., 2023)	Rural Etawah, UP, India	250	18.0%
Agarwal et al., 2010	Slum, Indore, India (MP)	312	47.8%
Acharya et al., 2015	PHC, Delhi, India	417	41.0%
Mukhopadhyay et al., 2013	West Bengal, India	355	34.5%
Akshaya & Shivalli, 2017	Rural PHC, Karnataka, India	184	79.3% (optimal)
Mazumdar et al., 2014	West Bengal, India	240	49.4%

of JSY, the flagship conditional cash transfer scheme for institutional delivery, was present in only 121 women (48.4%), indicating that more than half were unaware of available financial entitlements.

Regarding danger sign knowledge, which is a critical BPCR component, only 94 participants (37.6%) were aware of all six key obstetric danger signs across the three peripartum phases (pregnancy, intrapartum, and postpartum). The remaining 156 women (62.4%) lacked comprehensive danger sign awareness, representing a substantial knowledge deficit in the study population.

Healthcare decision-making autonomy was notably present in 224 women (89.6%), who reported that they (jointly or independently) participated in decisions about when and where to seek healthcare. Only 28 women (11.2%) reported being accompanied by a companion during ANC visits.

BPCR Status and Related Indicators

BPCR indicators are presented in Table 3. Fewer than half the participants (n=108, 43.2%) had discussed birth preparedness with family members, and only 103 (41.2%) reported having received adequate information about BPCR from any healthcare provider (ASHA, ANM, or physician). The proportion of women with favorable

BPCR was strikingly low at 45 (18.0%), meaning that 205 of 250 women (82.0%) were classified as having unfavorable BPCR. Table 5: Comparison of Favourable/Optimal BPCR with Selected Indian Studies

ble birth preparedness at the time of interview. This finding positions Etawah as a high-priority district in need of urgent BPCR quality improvement interventions (Figure 1).

Factors Associated with Favorable BPCR

The bivariate associations between BPCR status and key study variables are presented in Table 4. Four variables showed statistically significant associations with favorable BPCR.

Maternal education was significantly associated with favorable BPCR ($\chi^2=4.33$, $df=1$, $p < 0.05$). Among literate women, 39 of 186 (21.0%) had favorable BPCR, compared with only 6 of 64 (9.4%) among illiterate women, a more than twofold difference, highlighting the protective role of literacy in enabling preparedness behaviors.

Socioeconomic status showed a statistically significant association with BPCR ($\chi^2=17.12$, $df=1$, $p < 0.001$). Women from BPL households demonstrated a higher proportion of favorable BPCR compared with APL households. The

possible explanations and limitations of this finding are addressed in the discussion section.

The number of ANC visits was significantly associated with BPCR ($\chi^2=13.90$, $df=1$, $p<0.001$). Women with ≤ 4 ANC visits demonstrated a higher proportion of favorable BPCR compared with those having ≥ 5 visits. This unexpected finding should be interpreted cautiously and may reflect methodological limitations, including grouping differences and potential selection bias.

Awareness of key obstetric danger signs showed the most statistically robust association with favorable BPCR ($\chi^2=26.26$, $df=1$, $p<0.001$). Among women who were aware of six or more danger signs, 32 of 94 (34.0%) demonstrated favorable BPCR, compared with only 13 of 156 (8.3%) among those without such awareness, a fourfold disparity that underscores the centrality of danger sign education in promoting holistic birth preparedness.

Discussion

This community-based cross-sectional study, conducted among 250 pregnant and recently delivered women in rural Etawah, Uttar Pradesh, reveals a deeply concerning deficit in birth preparedness. A favorable BPCR was recorded in only 18.0% of the study population, a figure significantly lower than most reported estimates from India and globally. This finding constitutes both a call for immediate programmatic action and a robust evidence base for quality improvement in rural antenatal care delivery.

Interpretation of Key Finding: Critically Low Favorable BPCR

The observed 18.0% favorable BPCR in this study is markedly lower than figures reported from most Indian settings. For context, Agarwal *et al.* (2010) reported a BPCR index of 47.8% in Madhya Pradesh; Acharya *et al.* (2015) found 41.0% in Delhi; and Mukhopadhyay *et al.* (2013) described rates of 34.5 to 49.4% in West Bengal.¹²⁻¹⁴ The reference article from Karnataka, by Akshaya and Shivalli (2017), recorded optimal BPCR in 79.3% of participants — more than four times the rate observed in the present study.¹⁵ Globally, reported BPCR proportions range from 16.5% in sub-Saharan African contexts to 65% in Nepal.¹⁶ The present study's finding of 18.0% situates rural Etawah among the most poorly prepared communities documented in the BPCR literature.

Several structural and contextual factors explain this deficit. Etawah is a predominantly rural district in UP, one of India's poorest and most populous states, where access to quality maternal health services remains

constrained by inadequate infrastructure, health worker shortages, and deeply entrenched patriarchal norms. The high proportion of BPL households (54.4%) in this study population reflects the economic vulnerability that limits women's capacity to save funds, arrange transport, or independently seek care — all critical BPCR components.

Maternal Education and BPCR

Literate women had more than twice the rate of favorable BPCR compared to illiterate women (21.0 vs 9.4%, $p<0.05$). This aligns with extensive evidence from India and sub-Saharan Africa demonstrating that literacy empowers women to comprehend health information, process danger sign awareness, and engage in proactive planning for delivery.^{12,17} In the Etawah context, where 25.6% of study participants were illiterate — substantially higher than the Karnataka study population, where illiteracy was only 4.3%, this factor assumes particular programmatic significance. Illiterate women may struggle to retain or apply verbal BPCR counseling received during ANC. Visual, community-based, and audio-visual communication strategies tailored to low-literacy audiences are therefore essential for effective BPCR promotion in this setting.

Socioeconomic Status and BPCR: A Counterintuitive Finding

The significant association between socioeconomic status and BPCR ($\chi^2=17.12$, $p<0.001$) in this study produced a counterintuitive directionality: BPL women showed a higher proportion of favorable BPCR (27.2%) compared to APL women (7.0%). This finding diverges from most BPCR literature, including the Karnataka study, where APL status was associated with approximately four times higher odds of optimal BPCR.¹⁵ Multiple explanations merit consideration.

First, BPL-card-holding women in India are the primary beneficiaries of JSY incentives and are specifically targeted by ASHA and ANM outreach programs. Heightened contact with the health system through entitlement-driven programs may paradoxically translate into greater preparedness counseling exposure for BPL women. Second, methodological differences in BPCR definitions — particularly whether BPCR was assessed as a checklist score or a composite index — may influence apparent socioeconomic gradients. Third, if APL women in rural Etawah rely predominantly on private-sector ANC, as 46.0% of the study sample did — they may receive less systematic BPCR counseling compared to government-sector beneficiaries. Authors are encouraged

to re-examine this finding through stratified analysis of ANC source versus BPCR status in the dataset, as this would either validate or provide further nuance to this observation.

ANC Utilization and BPCR: Context-Dependent Associations

Women with four or fewer ANC visits showed a higher proportion of favorable BPCR (34.5%) compared to those with five or more visits (13.0%), a finding that appears paradoxical. One plausible explanation is that the group with fewer ANC visits may contain a higher proportion of recently delivered women who completed preparedness actions before their final visits — thus demonstrating preparedness despite relatively fewer contacts. Alternatively, this may reflect differences in the BPCR checklist used compared to more comprehensive checklists in other studies. The association's statistical significance ($p < 0.001$) nonetheless indicates a real pattern that warrants deeper examination. It should be noted that adequate ANC utilization (≥ 4 visits) is, in itself, an important determinant of BPCR in the broader literature,^{12,15} and the finding in this study should not be interpreted as suggesting that fewer ANC visits are beneficial.

Danger Sign Awareness: The Most Significant Predictor

Danger sign awareness demonstrated the strongest statistical association with favorable BPCR in this study ($\chi^2=26.26$, $p < 0.001$), with women who were danger-sign aware showing a fourfold higher proportion of favorable BPCR (34.0% vs 8.3%). Only 37.6% of study participants had comprehensive danger sign awareness, a level considerably lower than the 79.9% who were aware of at least one sign in the Karnataka study.¹⁵ This finding is consistent with the broader BPCR literature: multiple Indian and African studies have documented that inadequate danger sign knowledge is a principal driver of suboptimal birth preparedness and delayed care-seeking.¹³⁻¹⁸

The mechanistic pathway is logical. A woman who recognizes the warning signs of obstetric hemorrhage, eclampsia, or sepsis is far more likely to have planned a skilled birth attendant, saved funds for emergency transport, and discussed care-seeking with her family. Danger sign education and BPCR counseling are thus mutually reinforcing components of safe motherhood programs. That nearly 62% of women in this study lacked comprehensive danger sign awareness, despite 76.8% having completed ≥ 4 ANC visits, strongly suggests that

BPCR content is not being effectively communicated during ANC contacts in this setting. Systematic inclusion of BPCR counseling in every ANC visit, with documentation and supervisory monitoring by ANMs, is urgently indicated.

BPCR Information Coverage and Family Discussion

Only 41.2% of participants reported having received adequate information about BPCR from health workers, a level comparable to findings in poorly performing districts elsewhere in India.¹² Family discussion on BPCR was reported by 43.2%, meaning that the majority of women had not engaged their households in birth preparedness planning. In the Karnataka study, family discussion was one of the strongest independent predictors of optimal BPCR.¹⁵ That fewer than half the women in this study had undertaken this foundational step reflects both a counseling coverage gap and a structural barrier rooted in gender dynamics, as women in patriarchal households may require explicit facilitation, ideally through direct engagement of male partners by health workers — to initiate BPCR conversations.

JSY Awareness

Awareness of JSY was present in 48.4% of participants, slightly below the national estimated coverage figures and consistent with known gaps in scheme dissemination in rural UP. Given that JSY directly addresses financial barriers to institutional delivery (one of the core BPCR components), improving JSY awareness through ASHA-mediated outreach represents a low-cost, high-yield intervention in this setting.

Strengths And Limitations

Strengths

This study provides, to the best of the authors' knowledge, the first community-based dataset on BPCR from district Etawah, UP. The community-based (rather than facility-based) sampling approach allows for greater generalisability to the rural female population compared to hospital exit studies. The consecutive time-bound enrolment strategy minimizes selection bias by including all eligible women presenting during the study window. A pre-tested, structured instrument with face validity in the local language strengthens data reliability. The sample size of 250 is adequate for proportional estimation and bivariate analysis.

Limitations

Several limitations must be acknowledged. The cross-sectional design precludes any causal inference

regarding the observed associations. The study was conducted over a two-month period in a single field practice area, which may limit temporal and geographic representativeness. Recall bias may affect self-reported information on ANC visits, danger sign awareness, and BPCR components, particularly for recently delivered women. The BPCR checklist was not pre-validated against a gold-standard instrument, and the favourable/unfavourable dichotomisation may mask gradations of preparedness. Multivariate regression analysis was not performed, so independent predictors of BPCR cannot be identified from the reported data. Community-level and health-system-level BPCR determinants, including ASHA and ANM-level factors, were not assessed. Future studies with larger samples, validated instruments, and logistic regression models are needed to generate more robust evidence from this setting.

Conclusion

Birth preparedness and complication readiness among pregnant and recently delivered women in rural Etawah, Uttar Pradesh, were found to be low, with only 18.0% of participants demonstrating favorable BPCR. Maternal literacy, socioeconomic status, ANC utilization, and awareness of key obstetric danger signs were significantly associated with BPCR status. The findings highlight important gaps in BPCR counseling, danger sign awareness, and family-level preparedness discussions in this setting. These areas may represent priorities for future programmatic strengthening and further adequately powered studies in rural Uttar Pradesh.

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