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Understanding Maternal Awareness and Practices During the First 1,000 Days in Rural Bihar: A Community-Based Study

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ABSTRACT

The first 1,000 days of life—from conception to a child's second birthday—form a critical window in human development. This period influences long-term health, cognitive capacity, and emotional resilience. Despite national policy efforts such as Rashtriya Bal Swasthya Karyakram (RBSK), regional disparities persist in maternal and child health outcomes, especially in states like Bihar. This community-based study surveyed 125 rural mothers- 60 antenatal and 65 postnatal- in East Champaran to examine maternal knowledge, practices, and health-seeking behaviours. Findings revealed widespread gaps in understanding essential antenatal and postnatal care, particularly regarding nutrition, vaccination schedules, breastfeeding, and postpartum hygiene. While awareness of some topics, such as complementary feeding and vaccination, was high due to targeted health messaging, inconsistent practices, reactive healthcare-seeking behaviour, and systemic barriers underscore the need for culturally sensitive and proactive interventions.

Keywords: First 1000 days, maternal health, antenatal care, postnatal care, nutrition, NFHS-5, Bihar.

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Introduction

The first 1,000 days-spanning from conception to a child's second birthday-form a critical period that influences lifelong health outcomes in immunity, growth, and neurodevelopment. During this time, the brain develops rapidly, and timely interventions can significantly impact future well-being. Both international and national health strategies recognize the importance of this period. In India, the Rashtriya Bal Swasthya Karyakram (RBSK) aims to screen and manage developmental delays, nutrition issues, and birth defects in children aged 0 to 18 years[1]. Despite these programs, substantial regional disparities remain. NFHS-5 data show that only 25.8% of women in Bihar had four or more antenatal visits, and just 17.6% took iron-folic acid supplements for at least 100 days, far below the national average of 44.1%[2]. Additionally, immunization coverage in Bihar is only 61.6%, and stunting affects 42.9% of children under five, compared to 35.5% nationwide[2]. These statistics emphasize the urgent need to understand targeted maternal and child health interventions in Bihar today.

Materials and Methods

This descriptive and exploratory study employed structured interviews using a validated questionnaire, administered face-to-face across nearby selected villages in East Champaran district, Bihar. The sample included 125 women i.e., 60 antenatal and 65 postnatal mothers selected via convenience sampling. Inclusion criteria encompassed pregnancy or lactation within a child's first two years.

The survey covered socio-demographic variables viz., age, education, income, family type, obstetric history viz., parity, place of delivery, knowledge about ANC/PNC services, nutrition, vaccination, breastfeeding, actual healthcare practices and barriers to accessing care.

Data were analyzed using descriptive statistics (frequencies and percentages). Responses were grouped into antenatal and postnatal categories for comparative analysis.

Results and Discussion

[i] Section- A: Antenatal Mothers

(a) ***Demographic Profile*****:** Of the 60 antenatal mothers, 75% were aged 18–28 years, and 25% were 29–40 years. NFHS-5 shows that 7.9% of women aged 15–19 in Bihar were already mothers or pregnant, suggesting early childbearing trends[2]. Educational attainment was low; 31.7% were illiterate, and only 11.7% had graduate-level qualifications. The overall literacy rate for women in Bihar is just 55%.[2] Family structure leaned toward traditional households, with 70% in joint families. Regarding parity, 33.3% were primi-gravida, and 41.7% had one or more children (Table-1).

Table -1: Demographic profile of the antenatal mothers (n=60)

Variable	Category	No.	%
Age (in years)	18-28	45	75
	29-40	15	25
Educational Qualification	Illiterate	19	31.66
	Elementary	14	23.33
	Higher Secondary	20	33.33
	Graduation	7	11.66
Caste	General	9	15
	OBC	24	40
	SC	27	45
Types of Family	Joint	42	70
	Nuclear	18	30
Occupation of Mothers	Home maker	58	96
	Working	2	3.3
Parity	First pregnancy	10	33.3
	Having one child	10	16.7
	Having two onwards children	30	50

(b) ***Knowledge Assessment*****:** The majority (55.0%) demonstrated poor knowledge of antenatal care protocols. Alarmingly, 75% were unaware of the WHO-recommended four ANC visits, and 73.3% did not know the ideal timing for the first check-up[2,3].

Understanding of TT vaccination was incorrect in 76.7% of cases, reflecting wider trends found nationally where only 83.5% received two TT doses[4]. Awareness of proper nutrition during pregnancy was equally poor-88.3% did not know the recommended weight gain. Iron-deficiency anaemia remains prevalent in Bihar, affecting 63.5% of women[2] (Table-2).

Table- 2: Knowledge of antenatal mothers regarding nutritional, medical care (n=60)

Items	Correct		Incorrect	
	No.	%	No.	%
Minimum check-ups	15	25.0	45	75.0
First check-up month	16	26.7	44	73.3
Place of Deliver	33	55.0	27	45.0
TT Injections	14	23.3	46	76.7
Weight Gain	7	11.7	53	88.3
Kangaroo Mother care	10	16.7	50	88.3
Tobacco, smoking, alcohol during pregnancy is harmful	60	100.0	0	0.0
Extra nutrition	60	100.0	0	0.0
Awareness about infection	11	18.3	49	81.7
Non prescribed medicine	53	88.3	7	11.7

Knowledge of Kangaroo Mother Care (KMC) was almost nonexistent (83.3% unaware), confirming evidence from Chan et al. that rural KMC awareness falls between 10–25%[5]. Additionally, 45% of mothers held inaccurate views on the importance of institutional deliveries, despite Bihar achieving 89.1% institutional birth coverage[2].

(c) ***Practice Patterns*****:** Only 36.7% adhered to appropriate meal frequency. Dietary mis-conceptions persisted 13.3% believed eating less prevents large fetal size, reflecting cultural taboos noted in Tamil Nadu[6].

Healthcare utilization was reactive: 63.3% did not complete required ANC visits, & 60% sought care only during complications. According to NFHS-5, 18% of mothers in Bihar received no ANC at all.[2] A notable gap existed in vaccination-only 33.7% had received the T dap vaccine (Table-3).

Table-3: Practices of Antenatal mothers regarding maternal and child health care (n=60).

Variables	Good		Poor	
	No.	%	No.	%
ANC visit during pregnancy	22	36.7	38	63.3
Number of ANC visit	18	30.0	42	70.0
How many times eat in a day	20	33.3	40	66.7
Receive T dap Vaccine What is balanced diet	22	36.7	38	63.3
What is the balanced diet	28	46.7	32	53.3
Balanced breakfast	28	46.7	32	53.3
Balanced lunch	32	53.3	28	46.7
Extra meal	31	51.7	29	48.3
Balanced dinner	32	53.3	28	46.7
When start feeding after giving birth	39	65.0	21	35.5
Plan to place of delivery	44	73.3	16	26.7
Drink more tea/coffee to feel refresh	54	90.0	6	10.0
Eat less food to prevent fetus from getting crushed with food weight in the abdomen	52	86.7	8	13.3
Visited health center only if any complications occur	24	40.0	36	60.0

[ii] Section - B: Postnatal Mothers

(a) Demographics and Socioeconomics**:** Among postnatal mothers, age distribution included ≤20 years (23.1%), 21–25 years (50.8%), and ≥30 years (26.2%). Teenage pregnancies were higher than average, consistent with NFHS-5 findings (11.3% vs. 6.8% nationally)[2].

Educational attainment mirrored antenatal trends: 27.7% were illiterate, while only 6.2% held graduate-level education. Parity data revealed that 49.2% had two children and 24.6% had more than two, aligning with Bihar's Total Fertility Rate of 3.0[2]. Socioeconomic status was concerning: 44.6% of households earned less than ₹15,000/month, with limited access to sanitation and health insurance[2].

Postnatal Health Services**:** Most mothers (84.6%) relied on Anganwadi or Sub-centres, while only 15.4% accessed private health facilities. Alarmingly, 78.5% did not receive postnatal checkups, compared to a national average of 61%[2]. High home delivery rates (23.3%) in Bihar remain a concern[2]. Three infant deaths were reported due to home breech deliveries without prior antenatal care, highlighting the consequences of care gaps. As documented by Kumar et al., spatial disparities continue to impact institutional delivery decisions[7].

Table -4: Demographic profile of postnatal mothers (n=65)

Variable	Categories	No.	%
Age (years)	≤ 20	15	23.1
	21-25	33	50.8
	30 and above	17	26.2
Education	Illiterate	18	27.7
	Elementary	10	15.4
	Higher secondary	33	50.8
	Graduate	4	6.2
Caste	General	5	7.7
	OBC	26	40.0
	SC	34	52.3
Family type	Joint	34	52.3
	Nuclear	31	47.7
Monthly income	≤ 10K	12	18.5
	10-15 K	29	44.6
	15-20 K	12	18.5
	20+ K	12	18.5
Parity	One child	17	26.2
	Two Child	32	49.2
	>2 Child	16	24.6
Health facility	AWC /Sub-center	55	84.6
	Private	10	15.4
Type of delivery	Normal	58	89.2
	C-section	7	10.8
Place of delivery	Home	54	83.1
	Hospital	11	16.9
Post natal check up	Post natal visit not done	51	78.5
	Post natal visit done	14	21.5
Baby's Gender	Boy	38	58.5
	Girl	27	41.5

(c) ***Knowledge of Postnatal Care*:** A majority (78.5%) showed average knowledge, with high awareness of tobacco risks, child immunization, and hospital birth preference (90.8%). However, 100% lacked correct knowledge of postpartum self-care.

Colostrum knowledge was low-only 15.4% understood its importance. Tamang et al. found that 80% of rural Nepalese mothers lacked colostrum awareness and practiced prelacteal feeding[8]. Regarding KMC, 80% were unfamiliar with the technique. Gulati et al. (2018)[9], demonstrated that acceptance significantly increased following education, suggesting counseling during postnatal visits could enhance uptake (Table-4).

(d) Practice Patterns: Despite 100% receiving breastfeeding instruction, only 3% practiced correct frequency. Dietary habits were insufficient 41.5% had nutritious breakfasts and 72.3% skipped essential lactation meals. Singh et al. in Uttar Pradesh linked poor postnatal nutrition to anaemia and musculoskeletal issues in 70.7% of mothers[10].

Table- 5: Knowledge of Postnatal Mothers Regarding Maternal and Child Health Care Including Nutrition, high risk factor, and health care (n=65)

Variables	Correct		Incorrect	
	No.	%	No.	%
Place of Delivery	59	290.8	6	9.2
Kangaroo Mothers Care	13	20.0	52	80.0
Vaccines Types	65	100.0	0	0.0
Tobacco harmful	65	100.0	0	0.0
Postpartum	0	0.0	65	100.0
First milk	10	15.4	55	84.6
Start complementary food to baby	65	0.0	0	100.0
Initiate breastfeeding	63	96.9	2	3.1
Breastfeeding insufficient	65	100.0	0	100.0

Only 12.3% of mothers sought proactive care for themselves or their child. In contrast, newborn care practices were more encouraging 87.7% bathed infants appropriately, & all mothers introduced complementary food on time, possibly reflecting targeted public health messaging (Table-6).

Table- 6: Practices of Postnatal Mothers Regarding Maternal and Child Health Care including Nutritional and Health care (n=65)

Variables	Good		Poor	
	No.	%	No.	%
When Visited Health Center	8	12.3	57	87.7
Learnt Breastfeeding by Nurse/health worker	65	100.0	0	0.0
Bathing Newborn Baby	57	87.7	8	12.3
Balance diet	27	41.5	38	58.5
Balance breakfast	27	41.5	38	58.5
Balanced lunch	22	33.8	43	66.2
Extra meal	18	27.7	47	72.3
Balanced dinner	22	33.8	43	66.2
Start breastfeeding after birth	53	81.5	12	18.5
Breastfeeding times	0	0.0	65	100.0
Complimentary food starts to baby	65	100.0	0	0.0

Conclusion

This community-based study in selected villages of East Champaran, Bihar, highlights significant gaps between maternal knowledge and practical adherence to antenatal and postnatal care protocols. While awareness of some topics is improving, especially due to public campaigns, other areas—including postpartum hygiene, nutrition, vaccination, and proactive healthcare-seeking—remain under-addressed.

A multifaceted strategy is essential:

- Strengthen frontline worker capacity for health education.
- Increase availability and accessibility of preventive maternal services.
- Culturally adapt interventions to bridge belief-practice gaps.

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