

Association of Perception with Maternal Readiness among Postnatal Mothers with Low Birth Weight Infants: A Cross-sectional Study

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ABSTRACT

Background

Every year, 20 million low-birth-weight infants are born, and South Asia bears the highest burden. Despite advances in neonatal care, mothers often leave hospitals unprepared to care for these vulnerable newborns. This study highlights how maternal readiness for discharge can strengthen caregiving, improve newborn outcomes, and support progress toward the Sustainable Development Goals through family-centered neonatal care.

Methods

A descriptive cross-sectional study was conducted among 163 mothers of Low Birth Weight (LBW) infants who were medically advised for discharge. Participants were recruited through consecutive sampling from district- and tertiary-level public hospitals. Data were collected using interview schedules. The variables were maternal readiness for hospital discharge and maternal perception of discharge teaching. Descriptive statistics summarized sociodemographic data, and Chi-square, Fisher's exact test, and binary logistic regression were used for inferential analysis.

Results

While 89% of mothers viewed discharge teaching positively, only 29% were ready for discharge. Interestingly, those with positive perceptions were less likely to be ready. Readiness was higher among educated, employed mothers, those with more extended hospital stays, and preterm deliveries. Tertiary hospital delivery emerged as the sole independent predictor. Delivery at tertiary hospitals was the only independent predictor in multivariate analysis.

Conclusions

Despite positive views on teaching, many mothers were unprepared for discharge, revealing key gaps in information and skills, especially in district hospitals. Bridging these gaps is vital for equitable, Sustainable Development Goal-driven care. Where an LBW infant's survival depends equally on maternal empowerment and medical care, every LBW infant's survival hinges not on machines alone but on an empowered mother's hands.

Keywords

Infant, Newborn, Education, Health, Knowledge, Attitude, Hospitals, Birthweight, Risk assessment, Perception, Teaching.

What is known:

- Discharge procedures frequently focus on the low-birth-weight infant's clinical stability but often fall short of assessing mothers for the essential knowledge, confidence, and hands-on skills needed to maintain the newborn's health at home.

What is new:

- This study introduces a novel, skill-focused framework for assessing maternal readiness for hospital discharge that goes beyond traditional perceived-readiness models, prioritizing skill-based components over self-reported knowledge and practices.

INTRODUCTION

Reducing neonatal mortality to fewer than 12 deaths per 1,000 live births is one of the key targets outlined in the Sustainable Development Goals (SDGs) [1]. Caring for infants in the Neonatal Intensive Care Unit (NICU) can have a profound emotional impact on parents, often leading to feelings of fear regarding their baby's condition, uncertainty about the outcome, and a lack of confidence, particularly in mothers. These emotional challenges can affect the overall parental experience during the neonatal period [2]. The birth of a Low Birth Weight (LBW) infant and subsequent admission to the NICU often present mothers with a more challenging and complex transition to motherhood compared to those who deliver healthy, full-term babies [2]. Birth weight is widely recognized as the most critical determinant influencing neonatal mortality and morbidity, as well as health outcomes during infancy and early childhood [3]. LBW refers to the condition where an infant weighs less than 2,500 grams at birth, irrespective of the gestational age [4]. Each year, an estimated 15 million babies are born prematurely, and more than 20 million infants are delivered with LBW across the globe [5-6]. Preterm births have a global prevalence of 10.6%, with South Asia contributing to over one-third of the total cases. In addition, nearly 3 million stillbirths occur each year, with 98% of these tragedies taking place in developing nations [7]. LBW remains a significant public health concern, affecting approximately 15% to 20% of all births globally, with the highest rates in South Asian

countries, with a prevalence of 28% [8]. In rural India, adverse birth outcomes affect over 25% of births, contributing significantly to the ongoing public health challenges. [9] Despite a decline in LBW cases in India from 21% to 18% over the past decade, the nation may continue to encounter difficulties in meeting the child health and mortality goals outlined in the SDGs. [10] According to the 2020 Sample Registration System (SRS) report, the incidence of infants born without signs of life was recorded at 3.8 per 1,000 births. [11] Though Odisha has made progress in reducing the Infant Mortality Rate (IMR) and Neonatal Mortality Rate (NMR), according to the SRS 2015, the IMR is 46 per 1,000 live births and the NMR is 36 per 1,000 live births [12].

The current study highlights the critical role of structured, high-quality discharge teaching in empowering mothers to transition confidently from hospital to home. Midwives and Nurses are pivotal in this process, fostering maternal competence and resilience. However, the relationship between discharge teaching quality and maternal readiness remains underexplored.[13] This study addresses that gap by presenting an improvised version of the traditional perceived readiness model, introducing a novel scoring system that uses minimum-maximum normalization and weighted assessments, prioritizing skill demonstration over self-reported knowledge or attitudes. By advancing beyond conventional assessments, the study offers a more objective, actionable framework for evaluating maternal readiness to care for high-risk LBW infants, ultimately aiming to improve neonatal outcomes and strengthen family-centered care. The current study adopts Meleis's Transition Theory to examine maternal readiness for hospital discharge among mothers of LBW infants, focusing on the transition process, particularly situational and health/illness transitions, to help understand how mothers adapt to their caregiving roles after discharge [14].

METHODOLOGY

A cross-sectional study was undertaken to explore the association between maternal readiness for hospital discharge and maternal perception of discharge teaching among mothers of preterm or LBW infants. The study was conducted across two maternity units in Bhubaneswar, Odisha, ensuring representation from both secondary and tertiary levels of care to capture a broad demographic spectrum.

Maternal readiness for hospital discharge and maternal perception regarding discharge teaching are the key research variables in the current study. The study was carried out over three months, from November 2024 to January 2025. The study population included mothers of neonates

born preterm (gestational age < 37 weeks) or with LBW (< 2500 grams) who had been medically cleared for discharge. The exclusion criteria included mothers who left the hospital against medical advice, were referred to a higher-level facility, or had any psychological disorders or substance use issues. These inclusion criteria ensured the relevance of maternal perspectives at the critical transition point from hospital to home care. Sample size estimation was performed using OpenEpi, with the primary outcome being the proportion of mothers deemed ready for discharge. Parameters for the calculation included a 95% confidence level, a 5% margin of error, and an anticipated prevalence of 88%, based on prior literature [10].

The data collection tools comprised baseline characteristics of the mother and newborn, maternal perceptions of discharge teaching, and maternal readiness for hospital discharge. The development of these tools followed a rigorous, multi-phase process to ensure validity, relevance, and applicability.

The initial phase involved a literature review and focus group discussions with mothers of LBW and preterm infants, as well as healthcare professionals, to identify gaps and ensure contextual relevance. In the second phase, tool architecture was developed using Bloom's Taxonomy to structure cognitive, affective, and psychomotor domains. Item constructs were drafted, refined, and standardized for validity and reliability. Finally, a scoring algorithm was created to quantify responses, aligning theoretical foundations with practical application. The 3 data-collection tools were a sociodemographic profile, the Maternal Perception Questionnaire, and the Structured Maternal Assessment on Readiness for Transition (SMART) to assess mothers' knowledge, attitudes, and newborn skills.

All mothers of LBW or preterm infants advised for discharge were invited; of 181 approached, 12 were ineligible, and 6 declined due to time constraints and concern for the baby (Fig. 1).

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IDENTIFICATION

- Admitted postnatal mothers who delivered a low birth weight baby in DHH, Khordha and AIIMS Bhubaneswar

Target Population, n = 181

EXCLUSION

Excluded
n = 18

- Ineligible
- Not willing to participate

Exclusion Criteria

- Mothers opting DAMA
- Mothers being referred to higher centre
- Mothers with any known psychiatric disorder (anxiety, depression, behavioural disorder, personality disorder).
- Mothers with substance abuse (tobacco, alcohol, illicit drug addiction).

INCLUSION

Inclusion Criteria

- Preterm with LBW baby
- Term with LBW baby

Included in the study
n = 163

ANALYSIS



Figure 1: Flow diagram of the mothers as per STROBE guidelines

Data were collected in the hospitals' postnatal wards, ensuring mothers' comfort and privacy by drawing curtains. After building rapport, the researcher introduced herself and thoroughly explained the study's purpose, duration, and the voluntary nature of participation, along with the details in the participant information sheet and consent form. Only mothers who provided written informed consent, including thumb impressions for illiterate participants, were enrolled in the study.

Data were collected through face-to-face interviews in Odia at the mother's bedside, lasting 25-30 minutes, and conducted exclusively by the researcher in a distraction-free environment. Sessions were paused and resumed as needed, with mothers supported in calming their infants when babies cried during the interview.

If mothers demonstrated poor understanding or incorrect skill performance, the researcher provided individualized corrections post-interview to ensure data validity and uphold ethical responsibility. On average, 4 mothers were enrolled daily. The collected data were cleaned and checked for missing values, coded numerically, tabulated in Excel, and entered into SPSS software. Descriptive statistics were used for baseline characteristics. Chi-square test, Fisher's Exact test, and logistic regression were used for inferential statistics to determine whether maternal readiness for hospital discharge was independently associated with maternal perception regarding discharge teaching, sociodemographic variables, and clinical variables of the mother-infant dyad.

RESULT

181 mothers were assessed for eligibility; 163 eligible mothers with LBW and preterm infants were enrolled in the study (n=163). The mean age of the mothers was 24.10 years. Most of the mothers had attained secondary education (47.9%) and were homemakers (95.1%). A significant proportion of the mothers resided in rural areas (89.6%) and belonged to joint

families (73.6%). The majority had a family monthly income of less than ten thousand (47.2%), with an average of Rs. 14,526. (Table 1).

Table 1: Baseline characteristics of the enrolled mothers

					(n = 163)
S.No	Sociodemographic variable	Category	f	(%)	M±SD
1.	Mother's age (years)	≤20	28	17.2	24.10±3.97
		21-26	103	63.2	
		27-30	23	14.11	
		>30	9	5.5	
2.	Educational Qualification	No formal school education	8	4.9	
		Primary education	31	19.0	
		Secondary education	78	47.9	
		Higher Secondary	19	11.7	
		Graduation	8	4.90	
		Above graduation	19	11.7	
3.	Occupation	Homemaker	155	95.1	
		Private sector	4	2.5	
		Public sector	2	1.2	
		Others	2	1.2	
4.	Residence	Rural area	146(89.6)	89.6	
		Urban area	17(10.4)	10.4	
5.	Type of family	Nuclear	43	62.4	
		Joint	120	73.6	
6.	Monthly Income (INR)				14526±8784
7.	No. of children	1	107	65.6	
		2	52	31.9	
		≥3	4	2.5	
8.	Mode of delivery	Normal Vaginal delivery	127	77.9	

		Cesarean section (Elective)	10	6.1	
		Cesarean section (Emergency)	26	16.0	
9.	Length of hospital stay (days)				
		≤ 3	114	69.9	4.61±3.42
		4-10	39	23.9	
		11-20	6	3.7	
		>21	4	2.5	
10.	Previous experience of NICU/SNCU care of the newborn	Yes	3	1.8	
		No	160	98.2	
11.	Place of delivery	Secondary level	133	81.6	
		Tertiary level	30	18.4	
12.	Antenatal complications	Yes	24	14.7	
		No	139	85.3	
13.	Intranatal complications	Yes	9	5.5	
		No	154	94.5	
14.	Postnatal complications	Yes	6	3.6	
		No	157	96.4	
15.	The baby cried immediately after the birth	Yes	159	97.5	
		No	4	2.5	
16.	Birth weight (Grams)	<1000	1	0.6	
		1001-1500	5	3.1	
		1501-2000	13	8.0	
		2001-2499	144	83.34	
17.	Baby breastfeed	Yes	142	87.1	
		No	21	12.90	
18.	Gestational age at birth (weeks)	<28	0	0	
		28-31	2	1.2	
		32-34	1	0.6	
		35-37	8	4.9	
		38-40	118	72.4	
		>40	34	20.9	
19.	Neonatal complications	Yes	4	2.5	
		No	159	97.5	

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197 The majority of the mothers were primiparous (65.6%), and delivered vaginally (77.9%), and
198 discharged within 3 days (69.9%). Experience with Sick Newborn Care Unit (SNCU/NICU)

care was rare, as 98.2% of mothers had never encountered such facilities. Most mothers had an uncomplicated pregnancy, with 85.3% reporting no intranatal complications (94.5%), no antenatal complications, or no postnatal complications (96.3%). A large proportion of mothers. In contrast. Nearly all newborns in the study population (97.5%) cried immediately after birth. The majority of the newborns were of LBW (83.34%). Breastfeeding was initiated by 87.1% of mothers, and 72.4% of newborns were born at term. Additionally, (97.5%) of neonates had no reported complications. Fig. 2 shows that most mothers (89%) perceived discharge teaching positively. Fig. 3 shows that less than one-third (29%) of the mothers demonstrated readiness for hospital discharge.

(n = 163)

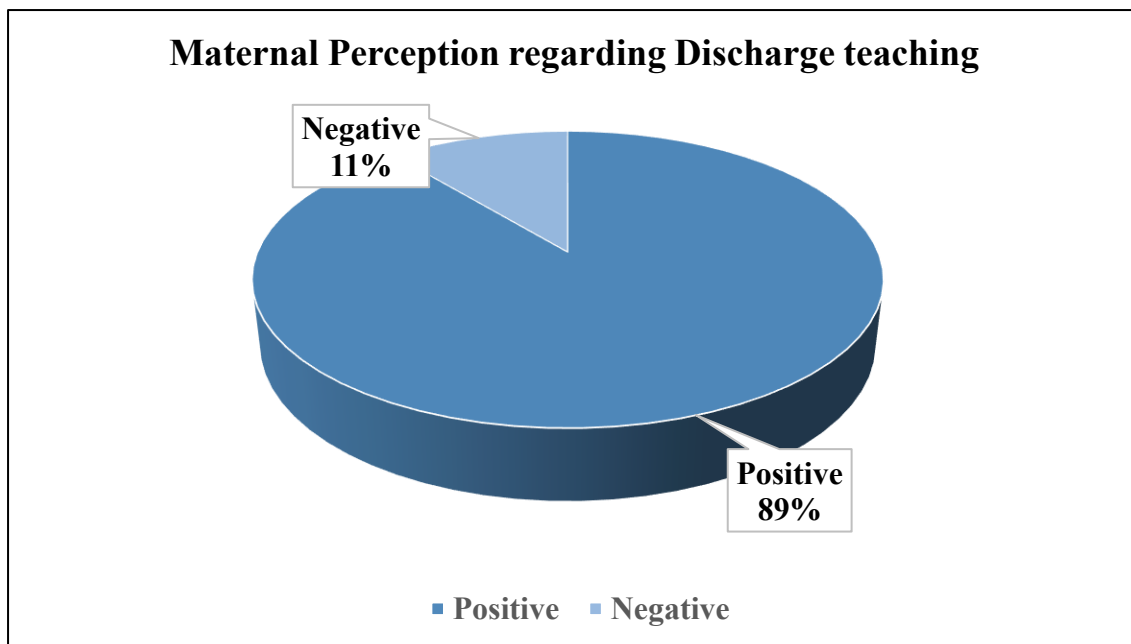
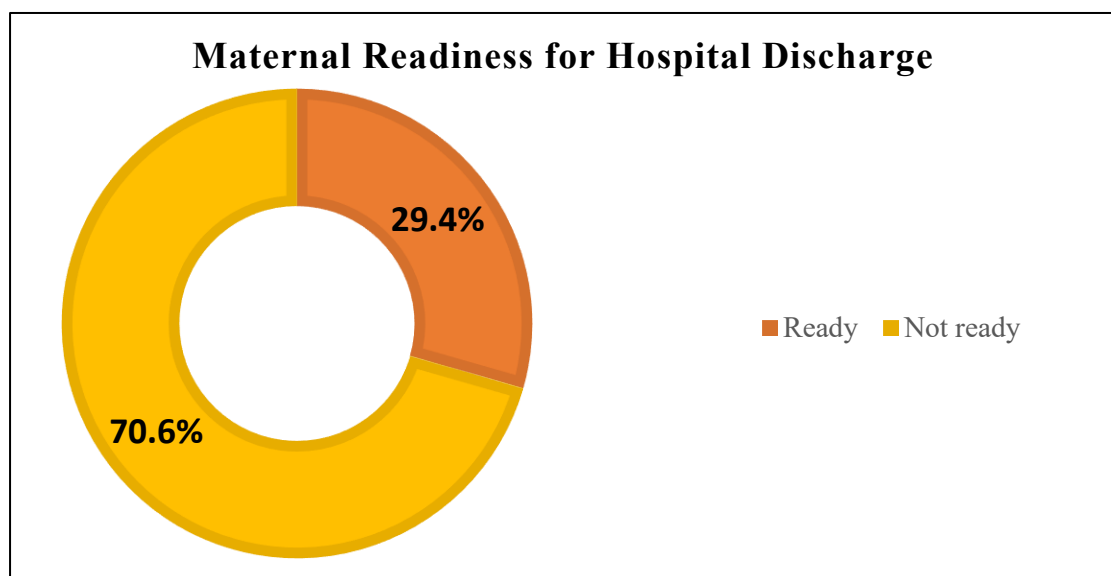


Figure 2: Maternal Perception regarding discharge teaching



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216 **Figure 3: Maternal Readiness for Hospital Discharge**

217 There was a significant association between educational qualification $\chi^2(5, n=163) = 18.779$,
 218 $P = 0.001$, and occupational status $\chi^2(3, n=163) = 12.863$, $P = 0.001$, with maternal readiness
 219 for hospital discharge. There was a significant association between length of hospital stay $\chi^2(3,$
 220 $n=163) = 12.904$, $P = 0.003$, previous experience of NICU/ SNCU $\chi^2(1, n=163) = 7.471$, $P =$
 221 0.024 , place of delivery $\chi^2(1, n=163) = 24.514$, $P = <0.001$, and gestation age $\chi^2(5, n=163)$
 222 $=12.566$, $P=0.001$) with maternal readiness for hospital discharge. Among mothers with a
 223 positive perception of discharge teaching, only 26.9% were ready for discharge, while 73.1%
 224 were not. Among mothers with a negative perception of discharge teaching, readiness was
 225 evenly distributed: 50% were ready, and 50% were not. (Table 2)

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227 **Table 2: Association of Maternal Readiness for Hospital Discharge with Sociodemographic**
 228 **Variables, Clinical Variables, and Maternal Perception Regarding Discharge Teaching**

S.No.	Variables	Maternal readiness for hospital discharge		df	χ^2 / FE	P value
		Ready f (%)	Not ready f (%)			
1.	Mother's age in years					
	a) ≤ 20	8(28.6)	20(71.4)			
	b) 21 -26	27(26.2)	76(73.8)	3	3.775	0.29
	c) 27 -30	8(34.8)	15(65.2)			
	d) > 30	5(55.6)	4(44.4)			

2.	Educational qualification					
	a) No formal education	3(37.5)	5(62.5)			
	b) Primary education	10(32.3)	21(67.7)			
	c) Secondary education	17(21.8)	61(78.2)	5	18.779	0.001*
	d) Higher secondary education	2(10.5)	17(89.5)			
	e) Graduation	3(37.5)	5(62.5)			
	f) Above graduation	13(68.4)	6(31.6)			
3.	Occupational status					
	a) Homemaker	42(27.1)	113(72.9)			
	b) Private sector	4(100)	0	3	12.863	0.001*
	c) Public sector	0	2(100)			
	d) Others	2(100)	0			
4.	Residence					
	a) Rural	41(28.1)	105(71.9)	1	1.257	0.26
	b) Urban	7(41.2)	10(58.8)			
5.	Type of family					
	a) Nuclear family	15(34.9)	28(65.1)	1	0.831	0.36
	b) Joint family	33(27.5)	87(72.5)			
6.	No. of children					
	a) 1	34(31.8)	73(68.2)			
	b) 2	14(26.9)	38(73.1)	2	1.578	0.48
	c) 3	0	4(3.5)			
	d) >3	0	0			
7.	Mode of delivery					
	a) Normal vaginal delivery	33(26)	94(74)			
	b) Cesarean section (elective)	6(60)	4(40)	2	5.305	0.06
	c) Cesarean section (emergency)	9(34.6)	17(65.4)			
8.	Length of hospital stay (days)					
	a) ≤ 3	24(21.1)	90(78.9)			
	b) 4-10	19(48.7)	20(51.3)	3	12.904	0.003*
	c) 11-20	3(50)	3(50)			
	d) > 21	2(50)	2(50)			
9.	Previous experience of NICU/ SNCU care of the newborn					
	a) Yes	3(100)	0	1	7.471	0.024*
	b) No	45(28.1)	115(71.9)			
10.	Place of delivery					
	a) Secondary-level healthcare	28(21.1)	105(78.9)	1	24.514	<0.001*
	b) Tertiary level healthcare	20(66.7)	10(33.3)			
11.	Antenatal complications					
	a) Yes	11(45.8)	13(54.2)	1	3.637	0.05
	b) No	37(26.6)	102(73.4)			
12.	Intranatal complications					
	a) Yes	1(11.1)	8(88.9)	1	1.832	0.19
	b) No	47(30.5)	107(69.5)			
13.	Postnatal complications					
	a) Yes	3(50)	3(50)	1	2.238	0.32

	b) No	45(28.6)	112(71.3)			
14.	Baby cried immediately after birth					
	a) Yes	45(28.3)	114(71.7)	1	3.636	0.07
	b) No	3(75)	1(25)			
15.	Birth weight (grams)					
	a) <1000	1(2.1)	0			
	b) 1001-1500	2(4.2)	3(2.6)	3	7.352	0.12
	c) 1501-2000	4(8.3)	9(7.8)			
	d) 2001-2499	41(85.4)	103(89.6)			
16.	Baby breastfeed					
	a) Yes	41(28.9)	101(71.1)	1	0.175	0.67
	b) No	7(33.3)	14(66.7)			
17.	Gestational age at birth(Weeks)					
	a) <28	0	0			
	b) 28-31	1(50)	1(50)			
	c) 32-34	1(100)	0			
	d) 35-37	5(62.5)	3(37.5)	5	12.566	0.004*
	e) 38-40	37(31.4)	81(68.6)			
	f) > 40	4(11.8)	30(88.2)			
18.	Neonatal complications					
	a) Yes	2(50)	2(50)	1	0.761	0.58
	b) No	46(28.9)	113(71.1)			
19.	Maternal perception regarding discharge teaching					
	a) Positive	39(26.9)	106(73.10)	1	4.114	0.043
	b) Negative	9(50)	9(50)			

χ^2 – Chi square test, FE – Fisher's Exact test, *P value <0.05 is statistically significant

In the binary logistic regression analysis, maternal perception of discharge teaching, only the place of delivery emerged as a significant independent predictor. Mothers who delivered at a tertiary care facility were 3.59 times more likely to be ready for discharge than those who delivered at a secondary care hospital (AOR = 3.59, 95% CI: 1.328–9.718). (Table 3).

Table 3: Multivariate Binary logistic regression of maternal and infant variables with Maternal Readiness

(n=163)

S. No	Predictor variable	Maternal Readiness for Hospital Discharge		AOR	95% CI for Exp (β)		P value
		Ready	Not ready		Lower	Upper	
		f (%)	f (%)				
1.	Maternal perception regarding discharge teaching						
	Positive	39(26.89)	106(73.10)	0.64	0.200	2.110	0.47
	Negative	9(50)	9(50)				Reference

Sociodemographic variables						
2.	Educational Qualification					
	Above graduation	16(59.25)	11(40.74)	2.20	0.774	0.626
	Below graduation	32(23.52)	104(76.47)			0.13 Reference
3.	Occupational status					
	Employed	6 (75)	2 (25)	0.24	0.038	1.606
	Unemployed	42(27.0)	113(72.90)			0.14 Reference
Obstetrics characteristics						
4.	Length of stay					
	>3	24 (48.97)	25 (51.02)	1.97	0.851	4.856
	< 3	24 (21.05)	90 (78.94)			0.11 Reference
5.	Place of delivery					
	Tertiary hospital	20(66.6)	10(33.3)	3.59	1.328	9.718
	Secondary hospital	28(21.05)	105(78.94)			0.012* Reference
Clinical profile of the newborn						
6.	Gestational age (weeks)					
	< 37	6 (85.71)	1(14.28)	9.14	0.827	101.0
	>37	42 (26.92)	114 (73.07)			0.07 Reference

AOR: Adjusted Odds Ratio, CI: 95% confidence interval, *P<0.05 is statistically significant

DISCUSSION

The study assessed maternal readiness for hospital discharge using the SMART tool and found that only 29.4% of mothers were adequately prepared. The maternal readiness rate in the study remains low and is inconsistent with the current scientific literature, which reports readiness rates ranging from 67.9% to 94.5% in developed and developing countries [15,16,17, 18, 19,20,21].

Several countries have adopted the standardized tool, the Readiness for Hospital Discharge Scale (RHDS), to assess maternal readiness for discharge. This tool commonly uses mean and standard deviation for evaluation, with a threshold of 7 or higher indicating readiness [22]. In countries such as China and the USA, readiness scores ranged from 7.50 ± 0.9 to 8.05 ± 1.27 . [22, 23, 24, 25, 26] likely due to methodological differences, and previous studies often relied on self-perceived readiness, while the current study objectively measured the mother's knowledge, attitude, and skills.

Disparities in readiness are also attributed to differences in healthcare infrastructure, availability of structured discharge education, and nurse-to-patient ratios, with developed

nations offering more comprehensive support than settings like India, where discharge teaching is limited and inconsistently delivered, especially in lower-tier hospitals.

Although 89% of mothers reported positive perceptions of discharge teaching, this did not translate into readiness. Socioeconomic factors such as low educational levels, rural residence, unemployment, and limited health literacy may have skewed maternal perceptions and led to overreporting of satisfaction. Cultural norms and free healthcare services may have also introduced response bias.

Interestingly, the study found a negative association between maternal perception of discharge teaching and Readiness ($OR = 0.36, P = 0.049$), contrasting with previous studies that reported a positive association. This suggests that, despite mothers feeling satisfied, the discharge education may not have been sufficiently effective or tailored to their actual needs.

Furthermore, sociodemographic and clinical variables were significantly associated with readiness. Higher education levels, employment, prior NICU exposure, and delivery in tertiary care centers positively influenced readiness, while extended hospital stays correlated with decreased readiness, potentially due to fatigue or unmet informational needs, consistent with findings of a study conducted in the USA, in which antepartum characteristics, such as maternal employment and maternal and infant length of stay, are associated with RHDS [27]. These findings reinforce the necessity for structured, personalized, and culturally sensitive discharge teaching to enhance maternal competence and infant outcomes.

The strength of the present study is that it is the first of its kind in the country to rigorously assess maternal hospital discharge readiness using a multidimensional framework of knowledge, attitude, and objectively verified practices. It introduces a novel methodology that combines min-max normalization with weighted scoring, thereby enhancing precision and clinical relevance. The tool enables actionable, skill-based evaluations that support structured discharge planning and reduce readmissions. Additionally, it promotes capacity building among mothers and healthcare providers and addresses health inequities by advocating for standardized discharge education in resource-limited settings. This evidence-based model sets a new benchmark for improving neonatal outcomes.

Problems identified in the study

Despite major strides in neonatal care and the increasing trend toward institutional delivery, a substantial proportion of mothers continue to be discharged without feeling truly equipped to

take on autonomous caregiving roles-a concern made more pressing when the infant is low birth weight or preterm. Discharge procedures frequently focus on the infant's clinical stability but often fall short of equipping mothers with the essential knowledge, confidence, and hands-on skills needed to maintain newborn health at home. Inadequate maternal readiness at discharge has been linked to heightened caregiver stress, preventable complications, and avoidable hospital readmissions.

Although discharge teaching is intended to prepare mothers for a smooth transition from hospital to home, there is limited empirical understanding of how mothers' perceptions of this teaching influence their actual readiness for discharge. This lack of evidence constrains the development of effective, mother-focused discharge education models.

The present study evaluated maternal readiness for hospital discharge. It explored its relationship with mothers' perceptions of the quality and delivery of discharge teaching, thereby addressing a critical gap in postnatal care and laying the groundwork for more impactful discharge education practices.

What is currently known about the topic

Maternal readiness is a critical predictor of postdischarge outcomes. Mothers who feel more prepared at discharge tend to demonstrate better newborn care practices, experience less anxiety, and are less likely to have unplanned hospital revisits.

Quality and perception of teaching matter: Studies suggest that mothers who perceive discharge teaching as clear, consistent, individualized, and delivered respectfully are more likely to feel ready. Perceived usefulness and timing of teaching are important predictors of confidence.

What this study adds to the literature

This study introduces a novel, skill-focused framework for assessing maternal readiness for hospital discharge that goes beyond traditional perceived-readiness models. By integrating practical demonstrations of caregiving skills, such as breastfeeding, kangaroo mother care, and hygiene, with objective evaluation, the study provides a more comprehensive assessment of readiness. It pioneers the use of minimum-maximum normalization and weighted scoring, prioritizing skill-based components over self-reported knowledge and practices. This data-driven approach enhances the tool's precision and real-world applicability, enabling healthcare providers to identify readiness gaps and deliver tailored discharge education.

Limitations

The limitation of the current study is that the findings are primarily generalizable to similar hospital settings with low socioeconomic and educational backgrounds. Additionally, the predominance of primiparous mothers may limit applicability to multiparous women, who may exhibit different readiness levels and perceptions of discharge teaching. The current study recommends conducting multicentre studies across varied healthcare settings to refine and validate the SMART tool, ensuring its psychometric robustness, cross-population reliability, and broader applicability. The study underscores that discharge teaching alone may not ensure maternal readiness. A standardized hospital-based discharge checklist is essential for verifying mothers' competence in newborn care before discharge. Further research should examine how discharge readiness influences hospital readmission rates, neonatal outcomes, and maternal stress, providing critical insights into the quality of long-term postnatal care.

CONCLUSION

The study concludes that, contrary to the existing literature reporting high maternal readiness, it reveals a concerning gap: many mothers engage in inadequate practices when caring for low-birth-weight infants, indicating poor discharge readiness. Key predictors such as maternal education, employment, gestational age, and length of hospital stay significantly influenced readiness, with tertiary care settings yielding better outcomes than secondary-level institutions.

These findings underscore the importance of implementing targeted, system-wide interventions to promote equitable discharge preparedness across all levels of care. This research goes beyond analysis, offering evidence to guide meaningful improvements. For LBW infants, survival is influenced not only by medical advancements but also by the readiness and support of their mothers. The goal is to contribute to policy development and support continuous improvements in maternal and newborn care.

Key message: This study reveals that discharge readiness is significantly overestimated based on perception; only objective, skill-based assessments can ensure actual preparedness, underscoring the need for evidence-based discharge protocols to protect low-birth-weight infants.

Abbreviations

Neonatal Intensive Care Unit (NICU), Sustainable Development Goal (SDG), Low Birth

Weight (LBW), Sample Registration System (SRS), Infant Mortality Rate (IMR) and Neonatal Mortality Rate (NMR), Structured Maternal Assessment on Readiness for Transition (SMART), Sick Newborn Care Unit (SNCU), Readiness for Hospital Discharge Scale (RHDS), Odds Ratio (OR), Adjusted Odds Ratio (AOR),

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Authors' contributions

Both authors, S.P and M.V.S., have contributed equally to the manuscript. S.P and M.V.S. conceptualized the study. S.P collected, analyzed, and interpreted the data. S.P and M.V.S. wrote the main manuscript text. S.P prepared figures 1-3. M.V.S. prepared Tables 1-3.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics approval and consent to participate

Before data collection, ethical approval was obtained from the Institutional Ethics Committee of AIIMS Bhubaneswar via reference number IEC/AIIMS/BBSR/Nursing/2023-24/39, dated May 24, 2024. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki and its later amendments. Written informed consent was obtained from all eligible mothers before participation. Participants were informed about the purpose of the study, their right to refuse participation or withdraw at any time without penalty, and the voluntary nature of participation. Confidentiality and anonymity were assured throughout the study, and all collected data were used solely for research purposes.

Competing interests

The authors declare that they have no competing interests.

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