ORIGINAL RESEARCH

DETERMINANT FACTORS THAT INFLUENCE FAMILY BEHAVIOR IN CARING FOR LBW USING THE HEALTH PROMOTION MODEL APPROACH

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ABSTRACT	Keywords
LBW care in the NICU room causes separation between babies and parents for quite a long time, so that parents of LBW often lack support and opportunities to be involved in care while in the NICU. Based on this description, it is necessary to develop a structured health education model for LBW families. This education is based on determinant factors that can influence the behavior of LBW families, so that it can improve the quality of life of LBW and the quality of nursing services. **Objective:** To identify factors that influence family behavior in caring for LBW in the NICU using the HPM approach. **Method:** This type of research *is explanatory* , the research design is *cross sectional* . The research sample was 105 families with LBW who were treated in the baby room of RSUD Dr. Soetomo Surabaya, data were analyzed using the Structural Equation Modeling - Partial Least Square (SEM-PLS) test. **Results and Analysis:** Perceived benefits have an effect on commitment (t statistics value = 3,790 > 1.96) , perceived obstacles have a significant effect on commitment (t statistics = 2,330 > 1.96), Perceived Self Efficacy has an effect on commitment (t statistics value = 3,370 > 1.96), commitment influences family behavior of LBW (t statistics value = 6,204 > 1.96). **Discussion and conclusions** Personal factors including age, marital status, education and income of LBW parents do not influence perceived benefits, perceived barriers, perceived *self-efficacy* and interpersonal influence. Perceived benefits, perceived barriers, and perceived *self-efficacy* influence family commitment in caring for LBW. Interpersonal influence does not affect commitment. Commitment influences the behavior of LBW families	**Health Promotion Model , LBW family behavior**

INTRODUCTION

The long-term hospitalization of LBW babies in the NICU is considered a "psychological crisis" in the family, causing feelings of helplessness and stress, especially for the mother. The description of

the anxiety level of mothers with LBW in the NICU room shows a severe level of anxiety of 68.3 % (Estri Wulansari, 2024). One of the most important is the initial separation between mother and baby, which can affect the attachment between the mother-child pair. As a result, feelings of anxiety and depression often occur in mothers of premature babies and appear more intense during the child's hospitalization in the neonatal intensive care unit (Mosca, et al 2018). LBW treatment in hospital for a long time will cause bonding disorders. between parents and babies , fiber increases anxiety in parents (Aloysius, 2018).

According to research, psychoeducation has an influence on the anxiety level of parents of babies being treated at the Perina-NICU of Tangerang District Hospital, with its implementation being quite easy and effective. (Dewi Sumiyati, 2024)Health education focuses on influencing and changing individual behavior. However, health is influenced by endogenous factors, exogenous factors, and systems. health services. Recognition of the interaction of these elements has consequences for actions deemed appropriate to promote positive health. To overcome health problems, a better approach is needed to address endogenous and exogenous determinants of health and the health service system. The concept that emerged was the concept of health promotion. (M. A. Coelen, 2004). Health education and health promotion are systematic propositions that are empirically tested (experimental) constructs that explain or predict changes in health behavior. (Sharma, 2022).

The Health Promotion Model is a health promotion model developed by Nola J. Pender in 1987 and revised in 2006. This health promotion model combines two theories, namely Expectancy Value Theory and Social Cognitive and Affective Theory which is consistent with all theories that view the importance of health promotion and disease prevention as logical and economical (Khoshnood, et al. 2018). Health promotion is defined as behavior that is motivated by the desire to improve well-being and actualize human health potential according to expectancy-value theory. Health protection or disease prevention is described as a motivated behavioral desire to actively avoid disease, detect it early or maintain function within the limits of disease (Pender 2011).

Good discharge planning, especially in the neonatal intensive care unit (NICU), can reduce the risk of the baby being readmitted, limit the length of hospital stay, and increase the family's confidence in caring for their baby at home. Factors that influence discharge planning in the NICU can be related to organization, communication, the level of knowledge and perceptions of nurses regarding discharge planning, as well as stress experienced by the families of babies being treated in the NICU (Reshidi, et al. 2016). The main factors influencing the development of nurse partnerships with parents of high-risk infants are nurse empowerment, emotional intelligence, patient-centered communication, and interpersonal competence. (Eun Kyoung Kim RN, 2023) Health care providers are responsible for ensuring that families achieve these competencies throughout their stay in the NICU until they return home (Seyedfarajollah, et al. 2018). Discharge planning has benefits, including systematic follow-up which is used to ensure continuity of patient care , and helps patient independence in readiness for home nursing. (Nursalam 2016)

Providing information and involving parents in baby care while the baby is being treated in hospital through the discharge planning process, as well as

providing emotional support are efforts to make parents empowered. Well-coordinated discharge planning can prepare the mother and family to have the knowledge and skills to care for their baby (Rustina, et al. 2014). By knowing the factors that influence family behavior, it can be used to develop educational methods that are useful for further treatment

METHOD

This research is an explanatory type with a cross sectional design, because both variables are observed simultaneously (causal variables). At this stage the researcher will evaluate the implementation of Discharge Planning by observing and collecting data on research samples in the nursery of Dr. RSUD. Soetomo Surabaya. The sample used was purposive sampling with the inclusion criteria being families in healthy condition who had LBW who were being treated in the NICU room, the exclusion criteria were LBW families who were unable to come to the hospital while LBW. The sample size calculation that will be used is 105 respondents

RESULTS AND DISCUSSION

LBW care can be classified in the serious category, where parents can assess various types of information differently (Herich, 2017). Managing the flow and content of information provided to parents may also be problematic because each parent has different abilities in receiving the information provided. What works well for some parents may not work for others. In particular, parental characteristics, such as gender, age , and previous parental experience, should be considered (Lantz 2017).

In this study personal factors were included as one of the variables to identify factors that support family perceptions in LBW care in relation to parents' views of the information provided to them, and to analyze the relationship between the influence of age ,
education , marital status and family income, because to treat LBW with complex problems requires good cooperation within the family and hospital. In caring for LBW, health workers and families will often interact to provide information and skills in caring for babies. The results of research on 105 respondents using the above method are described as follows, shown in table 1. the results of the variables identified by the researcher.

Personal factors questionnaire, perceived benefits, perceived obstacles, perceived self-efficacy, interpersonal influence, and commitment which have been coded according to their respective data scales will be grouped according to their categories. The type of data produced is the frequency and presentation of the recapitulation of research sample answers . Personal factors in this research include age, marital status, education and income. The frequency distribution of answers from 105 research respondents is as follows:

Table 1. Family Personal Factors of LBW treated in the baby room of RSUD Dr. Soetomo

	Characteristics Respondent	n	%
1	Age		
	a. < 17 years old	4	3.8
	b. 17-25 years old	39	37.1
	c. 26-35 years old	58	55.2
	d. >35 years	4	3.8
	Total	105	100
2	Married status		
	a. Not married yet	2	1.9
	b. Marry	103	98.1
	Total	105	100
3	Education		
	a. elementary school	10	9.5
	b. Middle school	14	13.3
	c. SENIOR HIGH SCHOOL	58	55.2
	d. Diploma/Bachelor	23	22.0
	Total	105	100
4	Income		
	a. < 1.5 million rupiah	10	9.5
		56	53.4

b. 1.5 – 3 million rupiah	39	37.1
c. ≥ 3 million rupiah		
Total	105	100

The variables assessed consist of *perceived benefit* , *perceived barrier* , *perceived self-efficacy* , interpersonal influence. commitment , and behavioral variables. The frequency distribution of answers from 105 respondents for each variable is shown in table 2.

Table 2 Results of the assessment of the variables perception of benefits, perception of obstacles, perception of self-confidence, interpersonal influence, commitment and behavior

Perceived Benefits (Perception of benefits)	N	%
Family readiness		
Not enough	0	0
Enough	3	2.9
Good	102	97.1
Total	105	100
Perceived Barriers (Perception of obstacles)	**N**	**%**
1. Time		
Never	18	17.1
Sometimes	14	13.3
Often	73	69.5
Total	105	100
2. Mother's health condition	8	7.6
Not enough	11	10.5
Enough	86	81.9
Good		
Total	105	100
Perceived Self Efficacy (Perception of Self-Confidence)	**N**	**%**
Ability to care for LBW		
Not enough	0	0
Enough	11	10.5
Good	94	89.5
Total	105	100
Interpersonal Influence	**N**	**%**
Family support		
Not enough	21	20
Enough	31	29.5
Good	53	50.5
Commitment	**N**	**%**
1. Intention		
Not enough	0	0
Enough	3	2.9
Good	102	97.1
Total	105	100
2. Awareness		
Not enough	0	0
Enough	0	0
Good	105	100
Total	105	100
Family behavior in caring for LBW	**N**	**%**
1. Infection Prevention	16	15.2
Not enough	42	40.0
Enough	47	44.8
Good		
2. Exclusive breastfeeding	38	36.2
Not enough	0	0
Enough	47	63.8
Good		
3. Kangaroo method treatment	7	6.7
Not enough	58	55.2
Enough	40	38.1
Good		
4. Change the baby's diaper	10	9.5
Not enough	48	45.7
Enough	47	44.8
Good		

Based on Table 2, it is known that the majority of respondents have a beneficial perception regarding family readiness for LBW care behavior in the good category, namely 102 people or 97.1%. Most respondents had a perception of barriers regarding the time required for family behavior to care for LBW in the frequent category, namely 73 people or 69.5%. Involving in the NICU more frequently provides an opportunity to increase mothers' understanding of potential factors that may be associated with preterm birth, and encourage personally chosen actions to improve their health and reduce the risk of future preterm birth. (kimber Padua, 2023)Most respondents had self-confidence

perceptions on the ability to care for LBW in the good category, namely 94 people or 89.5%, and in the sufficient category, 11 people or 10.5%. Interpersonal influence in the form of support for LBW families who are cared for in the baby room at RSUD Dr. Soetomo Surabaya showed that 53 people (50.5%) had good family support. .Most of the respondents had a commitment in the form of intention towards family behavior to care for LBW in the good category, namely 102 people or 97.1%. Most respondents had a level of compliance in preventing infection in the good category, 47 people or 44.8%, in the fair category, 42. people or 40% and the less than 16 people or 15.2% category. Mother's behavior in providing exclusive breastfeeding was included in the good category as many as 67 people or 63.8%, and in the poor category as many as 38 people or 36.2%. The behavior of mothers in carrying out kangaroo method care was included in the good category as many as 40 people or 38.1%, and in the adequate category as many as 58 people or 55.2%, and in the poor category as many as 7 people or 6.7%. The mother's behavior in changing the baby's diaper when the baby was being looked after was 47 people or 44.8% in the 98 good category, 48 people or 45.7% in the sufficient category and 10 people or 9.5% in the poor category

To see indicators that can form a latent variable and the relationship between each variable simultaneously, the PLS test was used using SmartPLS 3.0 software. The following is an evaluation of the measurement model on indicators of personal factors, *behavior specific cognition and affect* and commitment and behavior processed using SmartPLS 3.0 software

Table 3. Convergent validity results of the development of the LBW Discharge Planning Model Based on the Health Promotion Model on Family Behavior Caring for LBW who are cared for in the baby room at RSUD Dr. Soetomo Surabaya

Latent Variables	Indicator	Loading Factor	information
Personal Factors (X1)	Age (X1.1)	0.057	Invalid
	Marital status (X1.2)	0.074	Invalid
	Education (X1.3)	0.875	Valid
	Income (X1.4)	-0.795	Invalid
Perception of Benefits (X2)	Readiness Mother caring for LBW (x2.1)	1,000	Valid
Perception Obstacles (X3)	Time (X3.1)	0.913	Valid
	Condition (X3.2)	0.929	Valid
Perception *Self Efficacy* (X 4)	Ability Family caring for LBW (X4.1)	1,000	Valid
Interpersonal Influence (X5)	Support Family (X5.1)	1,000	Valid
Commitment (X6)	Intent (X6.1)	0.960	Valid
	Awareness (X6.2)	0.955	Valid
Behavior Family in caring for LBW (Y2)	Prevention Infection (Y2.1)	0.933	Valid
	Exclusive breastfeeding (Y2.2)	0.698	Valid
	Kangaroo Method Treatment (Y2.3)	0.640	Valid
	Replace Baby Diapers (Y2.4)	0.922	Valid

Based on table 3 , value *Outer loading* can be seen that the results of the indicators for age (0.057), marital status (0.074), and income (-0.795) have an *outer loading value* . This shows that these indicators are not valid for constructing latent variables, namely personal factors, so the three indicators of age, marital status and income must be removed from the model and need

to be recalculated using the SmartPLS program to see other *outer loading values* after the invalid indicators are removed.

The next test is to look at the reliability of the construct by looking at *Crobanch's Alpha or Composite Reliability* . Construct reliability in the PLS test using SmartPLS has the rule that the construct used has a *Composite Reliability value* >0.7 and *a Crobanch's Alpha value* >0.6. However, if *Crobanch's Alpha* does not meet it, the reliable category is obtained from the *Composite Reliability value.*

Table 4. Family Reliability Test Results from LBW treated in the baby room of Dr. Soetomo Surabaya

Latent Variables	Crobanch 's Alpha	Composite Reliability	Information
Personal Factors (X1)	-0.164	0.017	Not Reliable
Perceived Benefits (X2)	1,000	1,000	Reliable
Perception Obstacles (X3)	0.822	0.918	Reliable
Perception *Self Efficacy* (X4)	1,000	1,000	Reliable
Influence (X5)	1,000	1,000	Reliable
Commitment (X6)	0.909	0.957	Reliable
Behavior Family in caring for LBW (Y2)	0.835	0.881	Reliable

Based on table 5, it is known that *the composite reliability* and *Croban Alpha values* of the personal factor latent variable show a value of <0.7, so the personal factor latent variable is said to be unreliable. Meanwhile, *the composite reliability* and *Crobanch Alpha values* of the latent variables perception of benefits, perception of obstacles, perception of *self-efficacy* ,

interpersonal influence, commitment and family behavior are said to be reliable.

This research uses PLS *(Partial Least Square) data analysis techniques* . Based on the results of data processing, there is an evaluation of the structural model to determine the consistency of the model, and explain how much influence exogenous variables have on endogenous variables which are presented in the form of *a path diagram* . Test Results using the Smart PLS Program Families of LBW treated in the baby room of RSUD Dr. Soetomo Surabaya

The next stage is carried out Evaluation of the inner model to test the research hypothesis. The research hypothesis can be accepted if the T statistic value > T table. The T table value at an error rate of 102 5% is 1.96 . The path coefficient values and calculated T values in the inner model are presented in the following table:

Table 5. Hypothesis Test Results for families of LBW treated in the baby room at RSUD Dr. Soetomo Surabaya

Connection Variable		Coefficient track	t-statistic	P value	Information
Factor personal	Perception Benefit	-0.338	1,074	0.284	Not significant
Factor Personal	Perception Obstacle	-0170	0.844	0.399	Not significant
Factor Personal	Perception of Self Efficacy	-0.259	0.981	0.327	Not significant
Factor Personal	Influence Interpersonal	-0.360	1,061	0.289	Not significant
Perception Benefit	Commitment	0.400	3,790	0,000*	Significant
Perception obstacle	Commitment	0.202	2,330	0.020*	Significant
Perception	Commitment	0.351	3,370	0.001*	Significant

Cell Efficacy					
Influence Interpersonal	Commitment ➝	- 0.015	0.186	0.853	Not significant
Commitment	Behavior ➝	0.408	6,204	0,000*	Significant

Based on the hypothesis test in the table above, the results show that personal factors have no influence on perceived benefits, perceived obstacles, perceived *self-efficacy* , and interpersonal influence of family in caring for LBW. A significant influence is found in the relationship between perceived benefits and commitment, perceived obstacles to commitment, perceived *self-efficacy* to commitment, commitment influences the behavior of LBW families. According to a study, there is an influence of relationship model education on the self-efficacy of mothers who have LBW. The most dominant factors influencing the efficacy of mothers who have LBW are physical and emotional conditions. (Rosalia Dian A Putri, 2022)Health service providers have a priority task of promoting optimal early relationships between vulnerable babies, their caregivers, and professional staff in the NICU. Providing relationship-based evaluations, preventative interventions, and relationship-based family support services to vulnerable newborns and their families is complex and requires field specialization and appropriate mentoring. (Allison G. Dempsey, 2022).

CONCLUSION

Determinant factors that influence family behavior in caring for LBW consist of perceived benefits, perceived barriers, and perceived *self-efficacy* which influence family commitment in caring for LBW . Commitment influences the behavior of

families who care for LBW. In providing education, nurses can increase the perception of benefits and *self-efficacy* of families and reduce the perception of barriers felt by families to ensure family commitment in caring for LBW. can increase, so that families can improve their ability to care for LBW while in hospital and after being sent home. This is in line with several journals regarding breastfeeding which show an indirect relationship with family support and personal communication. Personal communication will increase if you receive support from the family, breastfeeding increases with joint decision making and good personal communication between nurses and mothers. (Laksono, 2023). Likewise, the journal concluded that there was an educational influence on the application of the kangaroo method of care on the level of knowledge of mothers of LBW babies at Drs. Regional Hospital. H. Abu Hanifah. (Nopitasari Nopitasari, 2023)

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