Pilot Study

Maternal Knowledge Level Determining Parenting Self-Efficacy Of Low Birth Weight Babies: Pilot Study

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ABSTRACT

Introduction: Low birth weight (LBW) babies have a higher risk of morbidity and mortality than normal babies, so this is a challenge for parents to provide special care. Mother's self-efficacy in providing care for LBW is an essential component in determining the quality of care of LBW. However, evidence is scarce on the correlation between the level of maternal knowledge and maternal self-efficacy in caring LBW, especially in Indonesia. Therefore, this study aimed to investigate the correlation between maternal knowledge level and maternal self-efficacy level who had LBW babies.

Methods: The research design was a descriptive analysis involving 22 respondents of postpartum mothers with LBW, willing to be involved in research and able to read and write and had LBW babies treated in the perinatology ward of a state teaching hospital in East Java in January-March 2020. Data were collected using maternal knowledge questionnaire and perceived maternal parenting self efficacy (PMP-SE) questionnaire. The descriptive and gamma correlation test were analyzed in this research.

Results: Spearman's rho correlation test showed a significant correlation between the level of knowledge and the mother's self-confidence (p = 0.043; r=0,435).

Conculusion: : The level of knowledge determines the level of self-efficacy in caring LBW babies, where the higher the level of knowledge correlates with the higher maternal self-efficacy. Nurses need to understand mothers' self-efficacy with LBW babies because high self-efficacy can indicate that mothers can provide quality care for LBW babies

Cite this as:

1. INTRODUCTION

The prevalence of low birth weight babies or LBW (babies with birth weight less than 2500 grams regardless of gestational age) in 2015 was 0.5 million, an estimated 14.6% of all babies born globally (UNICEF, 2016), and 91% of these babies are born in low and middle-income countries (Falcão et al., 2020). In Indonesia, 6.2% of babies were born with low birth weight in 2018, and East Java Province has a higher proportion of LBW than the national prevalence (6.6%) (Kementerian Kesehatan RI, 2018).

LBW babies have a higher risk of mortality and morbidity compared to normal infants due to some health problems such as hypothermia, infections, breathing problems (apnea of prematurity, surfactant deficiency, chronic lung disease), gastrointestinal problems (Necrotizing Enterocolitis or NEC), and feeding problems (Rustina, 2015; Setiati and Rahayu, 2017). Because of these conditions, some of these babies require intensive care in the hospital (Bowden and Greenberg, 2010). LBW babies have also a higher risk of rehospitalization by 25-50% than normal infants 8-10% in the first year of life. About 7.4% of the causes of rehospitalization are preventable factors such as milk aspiration, diarrhea, and infections, so parents must have sufficient knowledge about the special characteristics and danger signs in LBW babies (Rustina, 2015). A survey at a hospital in East Java found that 10.4% of LBW babies were rehospitalized before the age of one month due to serious health problems such as fever, infection, dehydration, shortness of breath, vomiting, and diarrhea (Astuti et al., 2019).

The particular condition of LBW babies required extra and appropriate care at home to minimize the risk of developmental delay and reduce morbidity and mortality (Prabhakaran, 2015). One of the principal aspects of mother-child attachment is parenting self-efficacy, especially the efficacy of the mother as a primary caregiver to fulfill a challenging task and responsibilities for caring for a LBW baby (Azmoude, Jafarnejade, and Mazlom, 2015). Moreover, parenting self-efficacy has been shown to improve the quality of care for infants and improve mothers' ability to care for infants (Thomas, Feeley and Grier, 2009; Puspitasari, Rachmawati and Budiati, 2018). Parenting self-efficacy is the ability and confidence to perform a specific task competently and effectively both cognitively, socially, and motorically as parents (Thomas, Feeley, and Grier, 2009; Azmoude, Jafarnejade, and Mazlom, 2015).

Several studies have proposed parenting self-efficacy in mothers with premature or LBW babies. Among them stated that the parental efficacy of mothers with LBW babies was lower than mothers with normal babies (Karraker and Coleman, 1997). Another study stated that the follow-up program using an early intervention was proven to increase maternal efficacy about parenting skills that support mothers' attachment and the quality of life of families with LBW babies (Lee, Kang, and Ji, 2019). Although several studies have examined the parenting self-efficacy in mothers with LBW babies, limited studies focusing on correlating it with the level of knowledge about caring for LBW babies at home. Additionally, this study also explicitly examines mothers' knowledge about LBW babies care which consists of procedures for keeping the baby warm, bathing the baby, preventing infection, and umbilical cord care. Therefore, further research is needed to investigate the relationship between the level of maternal knowledge and parenting self-efficacy in caring for LBW babies at home.

2. METHOD

2.1 Design

We used a descriptive-analytic research with a cross-sectional approach to analyze the correlation between the level of knowledge of postpartum mothers about LBW babies and parenting self-efficacy in caring for LBW babies as the primary objective, and the second objective was to assess the basic characteristics of mothers and LBW in the perinatology unit of the hospital.

2.2 Population

2.2 Population, Samples, and Sampling

A consecutive sampling involving 22 mothers of LBW baby were recruited from

the perinatology unit in a state hospital of east Java Indonesia from January to March 2020. The inclusion criteria were as follows: 1) postnatal mothers with low birth weight babies (< 2500 grams), 2) mother ability to read and write in stable health condition; and 3) willing to participate in this study. Exclusion criteria included 1) postnatal mothers who had low birth weight babies with any congenital abnormalities; 2) readmission of mother and infant at the hospital for any reason; and 3) did not complete the questionnaires.

2.3 Instruments

The data were collected by filling out a questionnaire which consisted of three parts accompanied by the researcher. Data on maternal and infant characteristics were assessed using a demographic questionnaire of maternal age, education level, and parity. Infant data consist of birth weight and chronological age of the baby. The researcher made the questionnaire to assess mothers' knowledge about LBW babies from some literatures consisting of 20 multiple choice questions with three answer choices. Based on the content, this questionnaire consists of three categories: 1) procedures for keeping the baby warm (four questions), bathing the baby (four questions), preventing infection (six questions), and umbilical cord care (six questions). The total score of knowledge is divided into three categories: good (score ≥ 16), sufficient (score 12-15 and poor (score ≤ 11). Perceived maternal parenting self efficacy (PMP S-E) was used to assess parenting self-efficacy consisting of 20 questions with four degrees (1=Strongly disagree, 4= Strongly disagree). The total score of PMP S-E is divided into three categories: high (score 60-80), medium (score 41-59), and low (score 20-40). These questionnaires (knowledge questionnaire and PMP S-E) have been tested for validity and reliability involving 17 mothers with LBW babies using "Product Moment Correlation" and "Cronbach Alpha" analysis (r=0,775; r=0,93)..

2.4 Analysis

Data were analyzed using the spearman's rho correlation test. Moreover, descriptive statistics, frequencies, and measures of central tendency were calculated. In all the tests, the significance level of p was set at less than 0.05.

2.5 Ethical Clearance

The study was started after obtaining approval from the ethics committee from the hospital where the research conducted with a number of ethical clearance 400/288/K.3/302/2019.

3. RESULT

In the current study, the mean age of the mother was 29.23 ± 7,8 years. Most of them had intermediate education (37.5%), work (62.5%) and primipara (45.8%). In addition, the mean of birth weight babies was 1643 ± 388.9 grams and with mean chronological age was 12.95 ± 9.5 days (Table 1).

According to the results of this study, most mothers with LBW babies had good knowledge about caring them (54.5%), and the rest had a sufficient level of knowledge (45.5%) (Table2). Based on the contents or indicators of the questionnaire, the category of knowledge about maintaining the babies' warmth had the lowest mean score (0.42), and knowledge about bathing the baby had the highest mean score (0.99) (Table 3). Moreover, most mothers with LBW babies had a high self-efficacy (86.4%), and the rest had a medium self-efficacy (13.6%) (Table2). The main result of this research showed that there was a strong significant correlation between level of maternal knowledge with maternal self-efficacy (p=0,043; r=0,435) (table 4).

Table 1. Respondent Characteristics (n=63)

Variables	x (sd)	Frequency (n=22)	Percentage(%)
Mother's age	29.23 (7.8)		
Mother's education			
Basic		8	33.3
Intermediate		9	37.5
High		5	20.8
Mother's occupation			
Work		15	62.5

Variables	x (sd)	Frequency (n=22)	Percentage(%)
Housewife		7	29.2
Number of deliveries			
One time		11	45.8
Two times		6	25
More than two times		5	20.8
Birth weight	1643 (388.9)		
Chronological age	12.95 (9.5)		

Table 2. Level of maternal knowledge and self-efficacy

Chararteristics	N	%
Level of Maternal's Knowledge		
Good	12	54.4
Sufficient	10	45.5
Poor	0	0
Level of maternal's self-efficacy		
High	19	86.4
Medium	3	13.6
Low	0	0

Table. 3 Distribution of Indicator of level Maternal Knowledge about LBW babies care

Indicator of level Maternal Knowledge about LBW babies care	Mean
keeping the baby warm	0.42
bathing the baby	0.99
preventing infection	0.81
umbilical cord care	0.75

Table 4. The correlation of knowledge and self-efficacy

Variable	Level of Maternal self-efficacy				Total		p-value	r-value
	Intermediate		High					
	f	%	f	%	f	%		
Level of maternal knowledge								
Sufficient	3	13.6%	7	31.8%	10	45.4%	0.043*	0,435
Good	0	0%	12	54.6%	12	54.6%		
Total	3	13.6%	19	86.4%	22	100%		

4. DISCUSSION

This study aims to investigate the relationship between the level of maternal knowledge and maternal self-efficacy in caring LBW babies. The majority of mothers have a good level of knowledge. This result is similar to another studies stating that most mothers with LBW babies had good knowledge about caring for their babies (Yani, Rustina, and Hastono, 2009). However, it was different from another similar study stating that most mothers with LBW babies have moderate and low levels of knowledge (Rahayu and Nurhayati, 2016). The health education has also been routinely carried out every 3-5 times per week in perinatology unit by nurses and students who practice so that mothers get much information about caring for LBW babies. Moreover, the mother's formal education level may also affect the mother's knowledge because most respondents have formal with intermediate and high education levels. The level of formal education contributes to determining whether or not a person can easily absorb and understand information obtained through health education (Julianti, Rustina, and Defi, 2019).

The maternal knowledge component about keeping the baby warm had the lowest mean score compared to others. This result is consistent with a similar study stating that most mothers with LBW babies have insufficient knowledge in maintaining the baby's temperature and warmth (Indrayati, 2020). The knowledge about maintaining baby warmth is a crucial thing in caring for LBW babies because one of the characteristics of LBW babies is having a higher risk of hypothermia due to underdevelopment of the

thermoregulation system, large surface area to body weight ratio, reduced heat production due to having less subcutaneous fat, brown fat, and the inability to shiver (Setiyawan, Prajani, and Agussafutri, 2019; Ukke and Diriba, 2019). This condition of LBW babies is something new for mothers. Moreover, most respondents are primigravida, so their experience caring for newborns is minimal, especially in knowledge about keeping LBW babies warm.

The self-efficacy of most mothers with LBW babies in this research is in the high category. This result contrasts with previous research stating that LBW birth negatively impacts the mother's psychological condition, increased maternal anxiety, and low self-efficacy (Suyami, Rustina, and Agustini, 2014). Self-efficacy of the mother is a factor that affects the adaptation and attainment of the mother's identity in infant care (Puspitasari, Rachmawati, and Budiati, 2018).

The main result of this study indicate a significant correlation between the level of maternal knowledge with a level of maternal self-efficacy. This means that level of maternal knowledge can predict the level of maternal self-efficacy. Our study result is similar to the previous study stating that one of the factors influencing maternal self-efficacy is education, which is usually correlated with maternal knowledge (Abuhammad, 2020). Another research also stated that the level of education of parents (mother and father) has a significant effect on the efficacy of postpartum mothers (Salonen, 2010). A good level of knowledge can affect mothers' self-competence and high self-efficacy in caring for their babies who need special care. It was also explained that parents who have higher education are expected to have the maturity to think, receive, process information, form, and develop self-efficacy through cognitive processes (Suyami, Rustina, and Agustini, 2014). Knowledge of cognition is a fundamental domain for the formation of one's actions (Rahayu and Nurhayati, 2016), so mothers with good knowledge of caring LBW babies are expected to be able to provide good care for them. On the other hand, mothers with low levels of knowledge can make mothers feel confused, which might affect their ability to care LBW babies (Astuti et al., 2019). Individuals with high

self-efficacy usually have high self-concept and self-esteem. With this high self-efficacy, we suppose they will encourage themselves to have optimism to succeed through difficult times, which means they will be success in caring for their LBW babies (Suyami, Rustina, and Agustini, 2014).

5. CONCLUSION

The maternal knowledge level showed a correlation with maternal self-efficacy in caring LBW babies. The higher level of knowledge showed a correlation to higher maternal self-efficacy. The high knowledge of mothers in caring LBW babies will influence the ability to care for their babies' special needs effectively and efficiently, specifically how to reduce the risk of morbidity and mortality. The component of maternal knowledge about maintaining baby warmth to prevent the risk of hypothermia was still low, so further education is needed. Nurses need to understand mothers' self-efficacy with LBW babies because high self-efficacy can indicate that mothers may provide quality care for their LBW babies.

6. STUDY LIMITATION AND SUGGESTION OF THIS STUDY

This study had some limitations. The sample size in this research was relatively small for a descriptive correlative study because researchers cannot continue to collect data in the perinatology unit because of hospital policies related to the pandemic Covid-19. This research was conducted starting in January 2020 and ended in March 2020 due to pandemic conditions, and the hospital advised us not to continue collecting data there. Additionally, the variable characteristic about the gender of the baby was not recorded, so the following questionnaire needs to be completed. Furthermore, the questionnaire about self-efficacy need to be completed about special care for LBW babies, such as kangaroo mother care.

7. ACKNOWLEDGEMENT

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8. CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

9. REFERENCES

Abuhammad, S. (2020) 'Predictors of maternal parenting self-efficacy for infants and toddlers: A Jordanian study', PLoS ONE, 15(11 November), pp. 1–10. doi: 10.1371/journal.pone.0241585.

Astuti, E. S. et al. (2019) 'Knowledge, Family Support and Self-Reliance Capital when Caring for Low Birth Weight Babies', Jurnal Ners, 14(1), p. 10. doi: 10.20473/jn.v14i1.12734.

Azmoude, E., Jafarnejade, F. and Mazlom, S. R. (2015) 'The Predictors for Maternal Self-efficacy in Early Parenthood', Journal of Midwifery & Reproductive Health, 3(2), pp. 368–376.

Bowden, V. R. and Greenberg, C. S. (2010) Children and their families: The continuum of care, Journal of Chemical Information and Modeling. Williams & Wilkins. doi: 10.1017/CBO9781107415324.004.

Falcão, I. R. et al. (2020) 'Factors associated with low birth weight at term: A population-based linkage study of the 100 million Brazilian cohort', BMC Pregnancy and Childbirth, 20(1), pp. 1–11. doi: 10.1186/s12884-020-03226-x.

Indrayati, N. (2020) 'Kesiapan orangtua dalam merawat bayi berat lahir rendah melalui edukasi perawatan bblr', Jurnal Ilmu Keperawatan Jiwa, 3(4), pp. 549–556.

Julianti, E., Rustina, Y. and Defi, E. (2019) 'Program Perencanaan Pulang Dapat Meningkatkan Pengetahuan Dan Keterampilan Ibu Yang Melahirkan Bayi Prematur Merawat Bayinya', Jurnal Keperawatan Indonesia, 22(1), pp. 74–81. doi: 10.7454/jki.v22i1.540.

Karraker, K. H. and Coleman, P. K. (1997) 'Self-efficacy and parenting quality: findings and future applications.', Developmental Review, 18(1), pp. 47–85. Available at: http://linkinghub.elsevier.com/retrieve/pii/S0273229797904482%5Cnpapers3://publication/doi/10.1006/drev.1997.0448.

Kementerian Kesehatan RI (2018) 'Laporan Riskesdas 2018', Laporan Nasional Riskesdas 2018, 53(9), pp. 154–165. Available at: http://www.yankes.kemkes.go.id/assets/downloads/PMK No. 57 Tahun 2013 tentang PTRM.pdf.

Lee, J., Kang, J. C. and Ji, E. S. (2019) 'Experiences of Mothers' Attachment in a Follow-Up Program Using Early Intervention for Low-Birth-Weight Infants', Asian Nursing Research, 13(3), pp. 177–183. doi: 10.1016/j.anr.2019.04.004.

Prabhakaran, H. (2015) 'Enhancing maternal knowledge in improving life of low birth weight babies', IOSR Journal of Nursing and Health Science (IOSR-JNHS), Volume 4(Issue 4 Ver. VII (Jul.-Aug. 2015)), p. PP 71-77. doi: 10.9790/1959-043XXXXX.

Puspitasari, J., Rachmawati, I. N. and Budiati, T. (2018) 'Family support and maternal self-efficacy of adolescent mothers', Enfermeria Clinica, 28, pp. 227–231.

Rahayu, S. and Nurhayati, I. A. (2016) 'Faktor Yang Mempengaruhi Tingkat Stres Orang Tua Pada Berat Badan Lahir Rendah (Bblr)', Jurnal Keperawatan Global, 1(2), pp. 87–93.

Rustina, Y. (2015) Bayi prematur: Perspektif keperawatan. Jakarta: Sagung Seto.

Salonen, A. (2010) Parenting Satisfaction and Parenting Self-Efficacy during the Postpartum Period Evaluation of an internet-based intervention, Science. University of Tampere Finland.

Setiati, A. R. and Rahayu, S. (2017) 'Faktor Yang Mempengaruhi Kejadian BBLR (Berat Badan Lahir Rendah) Di Ruang

Perawatan Intensif Neonatus RSUD DR Moewardi Di Surakarta', (Jkg) Jurnal Keperawatan Global, 2(1), pp. 9–20. doi: 10.37341/jkg.v2i1.27.

Setiyawan, S., Prajani, W. D. and Agussafutri, W. D. (2019) 'Pengaruh Pelaksanaan Kangaroo Mother Care (KMC) Selama Satu Jam Terhadap Suhu Tubuh Bayi Berat Badan Lahir Rendah (BBLR) Di Ruang Perinatologi RSUD Pandan Arang Boyolali', (Jkg) Jurnal Keperawatan Global, 4(1), pp. 35–44. doi: 10.37341/jkg.v4i1.64.

Suyami, Rustina, Y. and Agustini, N. (2014) 'Pengaruh Edukasi Terhadap Tingkat Kecemasan dan Tingkat Efikasi Diri Ibu Dalam Merawat BBLR', Prosiding Seminar Nasiona, pp. 242–248. Available at: http://download.garuda.ristekdikti.go.id/article.php?article=1352317&val=426&title=Pengaruh Edukasi Terhadap Tingkat Kecemasan Dan Tingkat Efikasi Diri Ibu Dalam Merawat BBLR.

Thomas, J., Feeley, N. and Grier, P. (2009) 'The perceived parenting self-efficacy of first-time fgathers caring for very-low-birth-weight infants self-efficacy in fathers of VLBW infants', Comprehensive Child and Adolescent Nursing, 32(4), pp. 180–199. doi: 10.3109/01460860903281366.

Ukke, G. G. and Diriba, K. (2019) 'Prevalence and factors associated with neonatal hypothermia on admission to neonatal intensive care units in Southwest Ethiopia – A cross-sectional study', PLoS ONE, 14(6), pp. 1–13. doi: 10.1371/journal.pone.0218020.

UNICEF (2016) 'Low birthweight - UNICEF DATA', UNICEF Data: Monitoring the Situation of Children and Women. Available at: http://data.unicef.org/topic/nutrition/low-birthweight/#.

Yani, E. R., Rustina, Y. and Hastono, S. P. (2009) pengaruh paket pendidikan kesehatan " Rindu " terhadap kesiapan ibu merawat bayi. Universitas Indonesia. Available at: http://lib.ui.ac.id/file?file=digital/2016-11/124763-Erna Rahma Yani.pdf.