

## Literature Review Study: Factors Affecting Caring Performance in Low Birth Weight (LBW) Infants

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### ABSTRACT

Globally, neonatal deaths are caused by LBW during home care. Complex LBW care when returning home requires parental knowledge and skills in understanding the baby's condition. Good care performance is required by parents and controlling factors that influence treatment at home. This study aimed to identify the factors that influence caring performance in LBW. The study using a literature review narrative design with 4 stages of selection based on the PRISMA diagram. Articles were searched using the search engines PubMed, SpringerLink, ScienceDirect, and Google Scholar with Indonesian and English keywords. From the results of the review, 11 articles were obtained which contained factors that influence caring performance during home care. From the analysis of all articles, it was found that there were 4 factors that influenced caring performance, namely maternal factors, sociodemographic factors, external factors, and cultural factors. The factor that has the most influence on caring performance is the mother's factor. Special interventions are needed for mothers to improve skills in LBW care at home to reduce neonatal mortality.

Keywords: low birth weight; caring performance; factors affecting

### INTRODUCTION

Low birth weight (LBW) accounts for 80% of global neonatal mortality (WHO and UNICEF, 2021). Many LBW deaths occur at the age of 0-28 days due to complex problems (Tomoyasu & Sobue, 2019) such as prematurity, respiratory failure, and hypothermia (Amelia et al., 2021). This causes babies born with LBW to be twice as likely to die compared to babies with normal birth weight (Alemu et al., 2019). The high risk of LBW infant mortality due to low APGAR scores and requiring intensive care (Wachamo et al., 2019). Besides that, the long-term impact of LBW causes growth and development disorders and congenital diseases that affect the quality of life of children (Abbas et al., 2021).

The health condition of babies with LBW becomes very vulnerable when they come home from treatment. Mortality and morbidity of LBW babies often occur during home care due to the lack of knowledge and skills of parents in understanding the baby's condition (Astuti et al., 2019b). The geographical conditions of remote areas and the lack of health facilities are also problems in preventing LBW deaths (Khan et al., 2020). Good care at home is vital to maintaining the baby's health (Asadian et al., 2019). Basic skills such as how to breastfeed properly, how to bathe, care for the umbilical cord, breastfeeding, and preventing hypothermia and infection must be done by mothers at home (Lubis, 2021). In this case, mothers are required to be confident in improving parenting skills to create good mother-infant bonds and a good mother's quality of life (Lee et al., 2019).

The condition of LBW is a complex problem and a challenge for parents (Lima et al., 2018). During home care, mothers may experience obstacles. Minimal knowledge and skills lead to a lack of self-confidence for mothers in caring for babies in the first 2 months (Abbas et al., 2021). Maternal care performance depends on the environment, such as the family, which can provide motivation and pay attention to the health of mothers and babies (Merdikawati et al., 2021). Discrimination and social stigma are also major challenges in LBW care (Koenraads et al., 2017). In unsupportive situations, the mother will be prone to experiencing psychological problems coupled with the mother's less adaptive coping, which has an impact on the quality of care for the baby (Humaira & Rifdi, 2019).

The quality of LBW care at home is a concern. In preventing LBW mortality and morbidity when caring at home (Andegiorgish et al., 2020). Parents of LBW babies need good care performance by controlling the factors that influence them. Therefore, further studies are needed to determine the factors influencing LBW care skills.

**METHOD**

This study uses a literature review design with a narrative literature review approach. The first stage is searching for articles using the search engines PubMed, SpringerLink, ScienceDirect, and Google Scholar with the keywords Indonesian and English (“Caring performance OR Practice”) AND (“need”) AND (“LBW”) (“Care practice” ) AND (“Necessity”) AND (“LBW”). The second stage is to determine the inclusion and exclusion criteria for articles. Article inclusion criteria include the type of research design experimental and non-experimental empirical studies, the respondents to the article research are parents who have LBW, the setting for LBW care in the community, articles in Indonesian or English and published in 2018-2023, articles explaining factors that influence treatment LBW. Incomplete articles, results of conferences or proceedings, and articles that do not contain the appropriate content are excluded. The third stage is the selection of articles with PRISMA diagrams obtained from 4 databases. The search results obtained 41,258 articles, and then the duplicated articles were deleted so that 41,138 articles were left. The results of 41,138 articles were screened for themes and abstract reviews related to factors related to LBW care so 120 articles were obtained. The results of the article screening were then screened for the contents of the articles based on inclusion and exclusion criteria. From the full-text screening, theme suitability, population suitability, methods, and results obtained 11 appropriate articles were. Screening search results are shown in the PRISMA chart below.

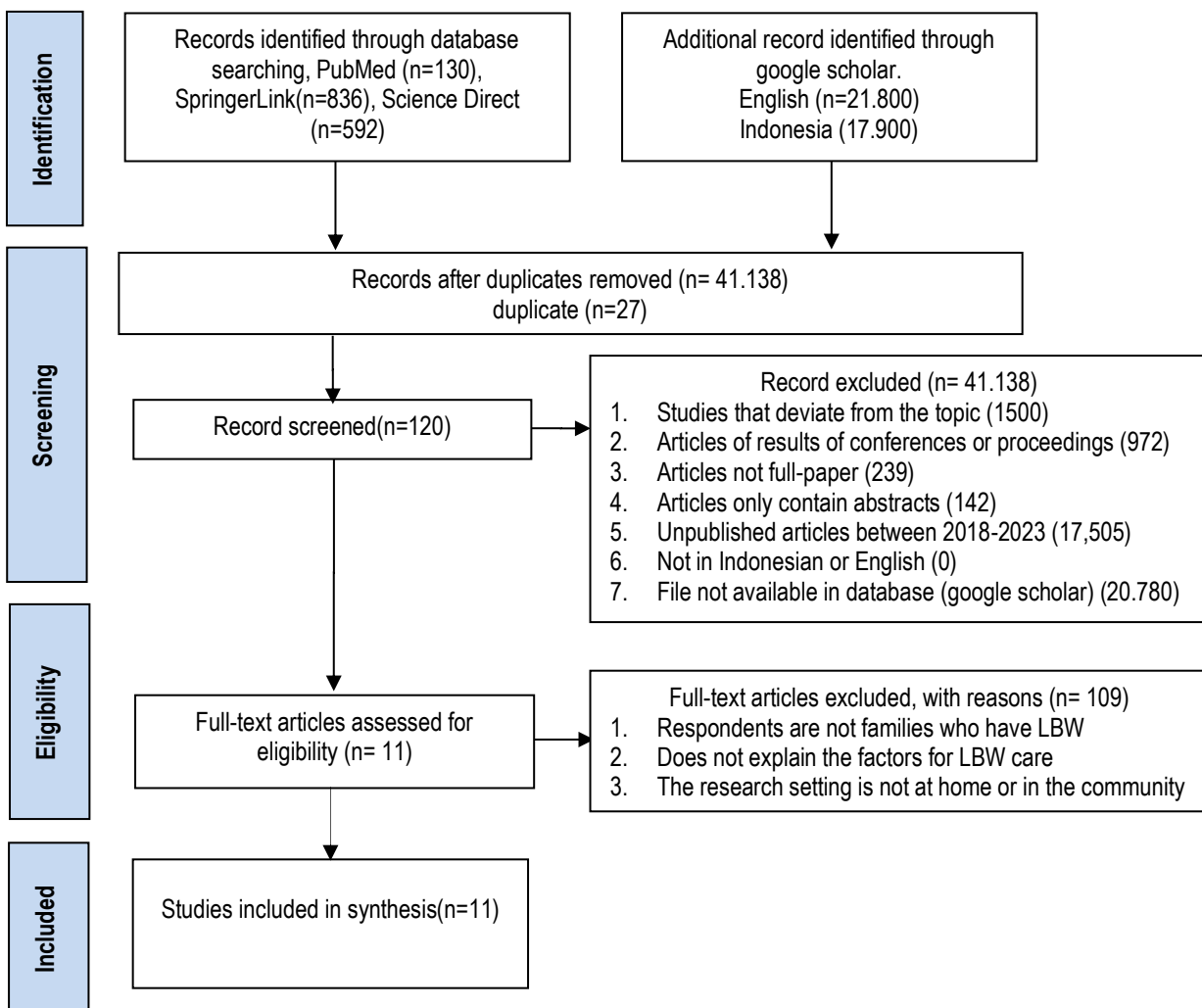


Figure 1. PRISMA Flowchart of The Literature Search

**RESULTS**

From the search results, 11 articles were successfully selected according to the criteria. All articles discuss the care of LBW babies at home and the factors that can influence them (Table 1.2). The research design of the articles found included 1 analytical survey article, 1 cross-sectional article, 1 article on Randomized Control Trial, 5 articles on Qualitative and Phenomenological Studies, 1 article on Descriptive Study, and 1 article on Explanatory Survey. Several factors that influence LBW care in the article are grouped into maternal, sociodemographic, external, and cultural factors presented in Table 1.

Table 1. Factors Affecting the Performance of LBW Treatments

No.	Factor affecting	Component
1.	Mother Factors	Nutritional status delivery status Mother's age Education and knowledge Attitude Grooming practice Mother motivation Confidence Mother's physical and psychological pressure Decision-making
2.	Sociodemographic Factors	Poverty/level of the economy Rural area
3.	External Factors	Family support Health workers Medical facility
4.	Cultural Factors	Family social culture Spiritual belief Social norms of the role of husband and wife

The performance of LBW care at home is influenced by several factors. Maternal factors play an important role in LBW care and are the main component of good quality care. Maternal nutritional status plays an important role in exclusive breastfeeding, as well as delivery status which determines the mother's experience in caring for LBW (Jana et al., 2023). Younger maternal age tends to have difficulty carrying out care because it is related to parity status and mental readiness, as well as a lack of knowledge of skills and care practices that are lacking (Jana et al., 2023; Lubis, 2021; Srivastava et al., 2022). Mother's motivation in caring for LBW affects self-confidence which has an impact on decision-making in LBW care (Bilal et al., 2021). In addition, the presence of work for the mother reduces the duration of interaction between mother and baby so that the quality of care is inadequate (Astuti et al., 2019c).

Sociodemographic factors are often an obstacle to providing good LBW care. Poverty and economic level are often obstacles for families in LBW care, especially when the baby is sick (Bilal et al., 2021; Jana et al., 2023; Lydon et al., 2022; Nisha et al., 2019; Srivastava et al., 2022). Limited access to health, such as in remote areas, is an obstacle to achieving good quality care (Jana et al., 2023; Ningsih & Setiawan, 2018; Nisha et al., 2019). This is related to external factors such as adequate health facilities and the presence of health workers. Even though health workers are the main key to providing education and training in care for mothers who have LBW (Ningsih & Setiawan, 2018). Besides that, family involvement is very important for increasing mother's motivation (Astuti et al., 2019a, 2019c; Bilal et al., 2021; Dargahiyani et al., 2023; Lydon et al., 2022; Schuler et al., 2019; Srivastava et al., 2022). Dargahiyani et al (2023) emphasized that a family such as a grandmother can temporarily replace the mother in caring for the baby so that the mother's burden is reduced.

Diverse cultures are often the influence of LBW care. Culture and beliefs held by the family are often factors that influence LBW care, for example, massage the baby and feeding the baby (Bilal et al., 2021). When a baby is sick, parents often take the baby to the local spiritual leader because they think there is a spiritual disturbance experienced by the child so superstitious beliefs are still found (Nisha et al., 2019). Social norms between the roles of husband and wife are still a problem. In society, the husband only plays a role in earning a living, while caring for babies and solving household problems is the wife's business. This inequality triggers the workload on wives which causes psychological problems (Lydon et al., 2022).

Table 2. Results of Article Analysis

No	Title	Author	Year	Objective	Design	Subject	Result	Factor
1.	Relationship between low birth weight and infant mortality: evidence from National Family Health Survey 2019-21, India	Arup Jana, Unnati et al.	2023	Identify the spatial grouping of LBW prevalence and its determinants	Analytic surveys	Mothers with LBW babies from National Family Health Survey 2019-21 data in India	The findings of this study indicate a higher prevalence of LBW deaths across India. Premature birth is a predictor of LBW along with maternal factors such as home delivery, nutritional status, age at birth, and education, other factors such as poverty and rural areas show high mortality rates in LBW	Maternal factors (nutrition status, childbirth, mother's age, education), Sociodemographic factors (poverty and rural area)
2.	Newborn thermal care in western Uttar Pradesh — gap analysis between knowledge and Practices	Anurag Srivastava et al.	2022	Assess knowledge and practice regarding the prevention of heat loss in infants	Cross-sectional study	Mothers of childbearing age (15-49 years) who have had live babies in the last 12 weeks	60.9% of mothers have knowledge and practice of infant hypothermia prevention care. Working mothers, younger age, education, economic status, and living with family influence mother's care practices	Maternal factors (age, education), Sociodemographic factors (economic level) External factors (family support)
3	A comparative study of the effects of Kangaroo care by mothers and maternal grandmothers on the vital signs of hospitalized preterm newborns: a randomized controlled clinical trial study	Zahra Dargahiyan et al.	2023	Comparing the effect of the kangaroo method of care on mothers and grandmothers	RCT	Mothers and grandmothers of LBW premature babies	The findings showed that KMC by maternal grandmother was as effective as KMC by mother in stabilizing body temperature and improving other vital signs such as heart rate, respiration rate, and SpO2 levels in premature newborns. Family members such as grandmothers can replace and support the mother in baby care	External factors (family support)
4.	Barriers for kangaroo mother care (KMC) acceptance, and practices in southern Ethiopia: a model for scaling up uptake and adherence using a qualitative study	Selamawit Mengesha Bilal et al.	2021	Identifying barriers to KMC implementation and developing an enhanced model for care in the community	Qualitative study	Nurses, midwives, health educators, mothers with LBW, husbands, parents-in-law/grandmothers	Obstacles in the practice of KMC are the lack of knowledge of the mother, social economy, culture and family structure, community beliefs and values, motivation in implementing the practice, and lack of supplies in health facilities.	Maternal factors (motivation, knowledge, practice) Sociodemographic (economic) factors Cultural factors (family socio-cultural) External factors (support of family members, health facilities)

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No	Title	Author	Year	Objective	Design	Subject	Result	Factor
5.	Pengalaman Ibu Usia Remaja Dalam Merawat Bayi Berat Lahir Rendah (BBLR) Di Kota Medan: Studi Fenomenologis	Widy Santri Ningsiha et al.	2018	An exploration of the experiences of teenage mothers caring for babies in Medan	Phenomenological studies	10 Adolescent mothers (17-20 years) with LBW babies and have experience caring for LBW at home	The study found 5 themes of experience of adolescent mothers in caring for LBW, namely: seeking LBW treatment, special care for LBW, limited socialization of mothers, physical and psychological pressure, support from family and health workers	Maternal factors (knowledge of LBW care, physical and psychological pressure when caring for LBW)  External factors (family support and health workers)
6.	Perceptions and practices related to birthweight in rural Bangladesh: Implications for neonatal health programs in low- and middle-income settings	Monjura Khatun Nisha et al.	2019	Exploring family perceptions of newborn birth weight, LBW prevention practices, and care practices for LBW newborns in rural Bangladesh.	Qualitative Studies	32 in-depth interviews (11 with pregnant women, 12 with new mothers, 4 with husbands whose wives are pregnant or have just given birth, 5 with mothers-in-law whose daughters-in-law are pregnant or have recently given birth), 2 focus group discussions with husbands, and 4 key informant interviews with public health workers	Most of the participants considered that birth weight was not a priority in assessing the health of newborns. Some mothers are afraid of Caesarean births which result in harmful practices such as reducing food intake during pregnancy so that the baby is born small and easy. The practice of caring for LBW is still not good, such as giving sugar water, animal milk, massaging, and seeking support from spiritual leaders. Lack of maternal decision-making power, financial constraints, home birth, and superstitions are the main challenges for caring for LBW newborns	Maternal factors (knowledge and practice of care, decision-making)  Sociodemographic factors (hinterland, economic status)  Cultural factors (visiting spiritual leaders, and superstitious beliefs)
7.	Re-envisioning Kangaroo Mother Care Implementation Through a Socioecological Model: Lessons From Malawi	Megan Lydon et al.	2022	Understand social norms and community perceptions of premature babies and KMC in Malawi, and inform social pilot and behavior change programs	Qualitative study	11 participants with focus groups and 20 in-depth interviews. The participants in question are pregnant women, parents involved in KMC, community members, health workers, and religious leaders	The results of the analysis obtained 3 main decision norms that affect KMC, namely: the perception of premature babies is not normal but must still be cared for, the division of roles that the husband must earn a living while the wife takes care of the baby and family, family and society must support each other. Interest in KMC practice is also influenced by prevailing social norms, economics, family obligations, and the mother's health status	Maternal factors (mother's perception and mother's health status both physically and mentally)  External factors (family and community involvement)  Sociodemographic factors (economic status)  Cultural factors (social normal roles of husband and wife)

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No	Title	Author	Year	Objective	Design	Subject	Result	Factor
8.	Mothers' Experiences with Neonatal Care for Low Birth Weight Infants at Home; A Qualitative Study in the Hohoe Municipality, Ghana	Christina Schuler et al.	2019	Exploration of knowledge and beliefs of mothers who have LBW, providing care at home, and people's perceptions of LBW	Qualitative study	38 participants with LBW mothers through semi-structured in-depth interviews and FGD methods	The interview results obtained 3 major themes, namely LBW knowledge and beliefs, LBW care practices and availability of support. LBW care practices are easier for multiparous mothers to implement. LBW is associated with poor maternal diet, pregnancy and hard work. In addition, the practice of LBW care is different at home. LBW is more likely to be less socially accepted, in the first-week babies are usually cared for by grandmothers.	Maternal factors (knowledge, care practices, self-confidence, stress)  External factors (family support)
9.	Knowledge, Family Support and Self-Reliance Capital when Caring for Low Birth Weight Babies	Erlina Suci Astuti et al.	2019	Knowing the relationship between a mother's knowledge and family support with infection prevention at home	Correlation studies	160 mothers who have babies less than 2500gr aged 1-2 months	The results showed that there was a strong relationship between knowledge and the ability to prevent infection in treating LBW ( $r = 0.696$ ; $p = 0.00$ ) and there was a moderate relationship between family support and the ability to prevent infection when caring for low birth weight ( $r = 0.00$ ). 54. $p = 0.000$ .	Maternal factors (knowledge and abilities)  External factors (support and family)
10.	Mother's Behavior In Caring For Low Birth Weight Babies (LBW) At Home	Ramenia M Lubis	2021	Knowing the level of knowledge, attitudes, and actions of mothers in caring for LBW babies at home	Descriptive study	30 mothers who have LBW babies aged 1 year who live in Medan and have cared for them at home	The results showed that the behavior of mothers in caring for LBW babies at home with good knowledge, attitudes, and positive actions	Maternal factors (knowledge, attitudes, and behavior)
11.	Mother's Independence Model within Caring for Low Birth Weight Babies at Home after Hospital Care Based on Mother Factors, Family Support, and Social Support	Erlina Suci Astuti et al.	2019	Developing a mother's independence model in caring for LBW at home	Explanatory survey	160 mothers who have LBW	The factor that has the most influence on the independence of mothers caring for LBW in the first 2 weeks is health workers provide knowledge and skills in LBW care. Other factors such as maternal stress, and knowledge. Mother's work and family factors also determine how mothers carry out their roles.	Maternal factors (knowledge and skills, stress)  External factors (family support and health workers)

## DISCUSSION

A review of 11 articles shows that the mother's factor is the most influential factor. Mothers with LBW have a vital role in LBW care at home (Schuler et al., 2019). Mothers' readiness for LBW care plays a role in LBW health, but recent studies have found that some mothers provide LBW care the same as babies in general (Harries & Brown, 2019). The age that is too young (Ningsih & Setiawan, 2018; Nisha et al., 2019) for mothers also influences decision-making for their babies (Bilal et al., 2021). Lack of knowledge and skills is often an obstacle for mothers in LBW care (Jana et al., 2023; Srivastava et al., 2022). Mothers must be confident and have the courage to care for their own babies to create a bond between mother and baby (Lubis, 2021). The first experience of caring for LBW can also increase stress on the mother (Astuti et al., 2019a; Ningsih & Setiawan, 2018) which affects breastfeeding (Mohammadi & Poursaberi, 2018). Stressful experiences cause interaction barriers between mother and child and have a long-term impact on parenting (Tambunan et al., 2020). Poor parenting of LBW results in delays in children's neurodevelopment (Silveira et al., 2018).

There are still many sociodemographic factors related to health facilities. Remote areas and far from health facilities are less profitable for mothers and LBWs (Nisha et al., 2019). Rural areas contribute to infant mortality due to a lack of skilled personnel, communication, and transportation for referrals (Fasawe et al., 2020). Poverty and low economy make it difficult for parents to access health facilities when their children are sick ((Bilal et al., 2021.; Jana et al., 2023; Lydon et al., 2022; Nisha et al., 2019; Srivastava et al., 2022). Poverty is a social determinant that greatly affects children's health in the acute phase (Yang-Huang et al., 2021). According to Borde et al (2020), poverty creates health disparities and low utilization of health services for mothers and babies with birth defects.

The involvement of health workers is an indicator of the success of LBW care at home (Astuti et al., 2019c). Health workers can provide good knowledge and skills in LBW care (Ningsih & Setiawan, 2018). The presence of health workers in the community can prevent maternal and infant deaths and reduce social group disparities based on wealth, occupation, education, ethnicity, and religion (Fasawe et al., 2020). Community health workers play a key role in strengthening a universal primary health system that is comprehensive, and patient-centered, according to cultural context (Blanchard et al., 2019). The existence of family support also has a positive impact on LBW health. Family members such as grandmothers can temporarily replace baby care (Lydon et al., 2022). The presence of the family can reduce the psychological burden of the mother in caring for the baby (Lima et al., 2018). Strengthening family functions can solve problems in caring for LBW babies (Umberger et al., 2018).

Culture is a social factor that exists in society. Socio-cultural factors can have good and bad impacts on a baby's health (Media, 2016). According to Bilal et al (2021), culture greatly influences infant care. Gee et al (2019) added that local sociocultural factors influenced home care practices and care behaviors such as the decision to breastfeed or use a trained midwife. Spiritual beliefs when LBW babies are sick such as visiting smart people are still often found (Nisha et al., 2019). Previous studies suggest that spiritual beliefs prevent mothers and their babies from seeking care and are more likely to stay at home to escape evil spirits. This is a barrier to practicing care for LBW (Sinha et al., 2018). Social norms, such as the role of husband and wife, are still widely found. Caring for LBW and managing the household is the role of the wife while the husband only works (Lydon et al., 2022). Even though a husband also has a vital role such as a secondary role to replace the temporary wife and the main source of support for the wife (Serlachius et al., 2018).

## CONCLUSION

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