



The Impact of Health Education Using Audio-Visual Media on the Family's Role in LBW Care at Mutia Sari Hospital, Duri, Riau

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<p>Track Record Article</p> <p>Revised: 09 March 2026 Accepted: 29 June 2026 Published: 30 June 2026</p> <p>How to cite : Situmorang, H., Siregar, S. D. B., & Sitorus, N. Y. (2026). The Impact of Health Education Using Audio-Visual Media on the Family's Role in LBW Care at Mutia Sari Hospital, Duri, Riau. <i>Contagion: Scientific Periodical of Public Health and Coastal Health</i>, 8(2), 466–476.</p>	<p style="text-align: center;">Abstract</p> <p><i>Low birth weight (LBW) is a major neonatal health concern that places considerable demands on families, who often lack adequate knowledge and skills to care for their infants. Health education through audiovisual media offers a concrete and engaging means of strengthening the family's caregiving role. This study aimed to determine the effect of health education using audiovisual media on the family's role in caring for LBW infants at Mutia Sari Hospital, Duri, Riau. A quantitative quasi-experimental design with a one-group pretest–posttest approach was employed. The population comprised all families of LBW patients at the hospital, and 30 respondents were selected through total sampling. Data on the family's role were collected using a validated questionnaire and analyzed using the Wilcoxon signed-rank test. Before the intervention, the family's role was predominantly in the poor category (50.0%), whereas after the intervention, the majority shifted to the adequate category (46.7%), with the good category rising to 36.7% and the poor category declining to 16.7%. The Wilcoxon signed-rank test yielded $Z = -3.272$ with a p-value of 0.001 ($p < 0.05$), indicating a statistically significant difference in the family's role before and after the intervention. It is therefore concluded that health education using audiovisual media significantly improved the family's role in LBW care, and it is recommended that nurses integrate this approach into routine maternal and neonatal care.</i></p> <p>Keywords: <i>Health Education, Audiovisual Media, Family Role, Low Birth Weight, Neonatal Care.</i></p>
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INTRODUCTION

Low birth weight (LBW) disrupts family functioning and is one of the most powerful stressors for parents. Parents experience financial and psychosocial stress because of their babies. Daily functioning/role, communication, caregiving, disease recurrence, and life-threatening LBW are factors that exacerbate parental stress (Ramadhanty & Rokhaidah, 2021). This is because parents perceive LBW as more of a family disease than a disease that affects only individuals (Alves et al., 2016). The crucial role of nurses is crucial in addressing the lack of knowledge experienced by parents.

Minimal knowledge regarding LBW care can impact the inadequate care provided. If not addressed properly, the growth and development of LBW babies will be impaired due to the mother's lack of knowledge in providing care. Furthermore, the health of babies with LBW will be affected by careless care practices. Nurses, as counselors, can conduct or provide counseling activities to facilitate problem-solving and alternative solutions to parents' concerns (Proverawati & Ismawati, 2010). One stimulus that can be provided is an educational program.

Providing education is an alternative intervention that can address parents' lack of knowledge (Purdy et al., 2015).

Research conducted by Ernawaty et al., (2022), found that education is effective in reducing anxiety and depression and can increase self-efficacy, knowledge, and emotional well-being in parents with low birth weight (LBW). Emotional stability in parents can impact child care and enable parents to fulfill their functions and roles within the family (Arfan et al., 2025). Educational media are classified into three types based on their sensory input: audio, which provides information through the sense of hearing, such as radio, cassettes, and MP3s; visual, which provides information through the sense of sight, such as newspapers, magazines, posters, leaflets, flip charts, booklets, and slideshows; and audiovisual, which is the most modern form of media, providing information through both hearing and sight. Of the three types of media, audiovisual has many advantages over the others.

The advantages of audiovisual media include their affordability, their ability to significantly assist the recipient in understanding the information provided, and their ease in providing education without direct interaction. Audiovisual media is the most modern medium today and offers the most advantages compared to other media (Asmuji & Faridah, 2018). Interviews with five families of LBW patients revealed that they did not understand how to care for their babies. Families also asked about how to feed, bathe, or care for their babies. The novelty of this study lies in the use of audiovisual-based health education combined with demonstration and guided practice to strengthen the family's role in caring for low-birth-weight infants. Unlike previous studies that mostly focused on improving knowledge or attitudes, this study evaluates the family's role as the main outcome, thereby providing a more comprehensive picture of family involvement in LBW care.

METHODS

This study employed a quantitative quasi-experimental design using a one-group pretest–posttest approach. This design was selected to evaluate the effect of health education delivered through audiovisual media on the family's role in caring for low birth weight (LBW) infants by comparing the family's role before and after the intervention within a single group, without a comparison group.

This research was conducted at Mutia Sari Hospital, Duri, Riau, which was implemented from January to July 2025. This location was chosen intentionally because preliminary studies revealed that many families of low birth weight (LBW) infant patients at this hospital lacked adequate understanding of how to care for their babies.

The population comprised all families of LBW patients treated at Mutia Sari Hospital, Duri, Riau, totalling 30 people. The sampling technique used was total sampling (saturation sampling), in which the entire accessible population was taken as the sample, yielding 30 respondents. This technique was applied because the population was relatively small, so including the whole population as the sample was expected to improve the representativeness of the findings.

The inclusion criteria were families who served as the primary caregivers of LBW infants, were willing to participate and sign informed consent, and were able to read and communicate in Indonesian. The exclusion criteria were families who withdrew during the study or did not complete both the pretest and the posttest. The independent variable was health education using audiovisual media, while the dependent variable was the family's role in caring for LBW infants.

Data on the family's role were collected using a structured questionnaire comprising 20 statement items measured on a four-point Likert scale (1 = never to 4 = always), producing a total score ranging from 20 to 80. The total score was converted into a percentage and classified into three categories following Arikunto's classification: good (76–100%), adequate (56–75%), and poor (<56%). Because the resulting data were ordinal in nature, this categorization determined the choice of statistical analysis. Prior to data collection, the instrument was tested on 20 respondents with characteristics similar to the study sample. The validity test using the Pearson product-moment correlation yielded r values ranging from 0.452 to 0.781, all exceeding the r -table value of 0.444 ($n = 20$, $\alpha = 0.05$), indicating that all items were valid. The reliability test produced a Cronbach's alpha coefficient of 0.842, exceeding the threshold of 0.60, which confirmed that the instrument was reliable.

The intervention was conducted in individual sessions. Each respondent first completed the pretest to assess the baseline family role in LBW care. Health education was then delivered through audiovisual media in the form of a video lasting approximately 15 minutes, which presented LBW care practices, including maintaining the infant's body temperature, breastfeeding techniques, hygiene, and the recognition of danger signs. Following the audiovisual presentation, the material was reinforced through demonstration, guided hands-on practice, and evaluation by the researcher together with the nursing staff. The posttest was administered seven days after the intervention to reassess the family's role.

Data were analyzed using SPSS version 25. Univariate analysis was used to describe the frequency distribution of respondent characteristics and the family's role before and after the intervention. The normality of the data was examined using the Shapiro–Wilk test, which

is appropriate for samples of fewer than 50 respondents; the results indicated that the data were not normally distributed. Consequently, because the dependent variable was measured on an ordinal scale, the bivariate analysis employed the non-parametric Wilcoxon signed-rank test to examine the difference in the family's role before and after the intervention. The significance level was set at $\alpha = 0.05$, with a p-value of less than 0.05 considered to indicate a statistically significant difference.

RESULTS

Respondent Characteristics

A total of 30 respondents participated in this study. As shown in Table 1, most respondents were aged 36–45 years (56.7%). In terms of education, the largest group had completed senior high school (36.7%), and occupations were evenly split between private-sector employees and housewives (40.0% each).

Table 1. Distribution of Respondent Characteristics (n = 30)

Characteristic	f	%
Age (years)		
25–35	7	23.3
36–45	17	56.7
>45	6	20.0
Education		
Elementary school	3	10.0
Junior high school	9	30.0
Senior high school	11	36.7
University	7	23.3
Occupation		
Private sector	12	40.0
Civil servant	6	20.0
Housewife	12	40.0

Family Role in LBW Care Before the Intervention

Table 2. Family Role in LBW Care Before and After the Intervention (n = 30)

Family Role	f	%
Family Role in LBW Care Before the Intervention		
Poor	15	50.0
Adequate	11	36.7
Good	4	13.3
Total	30	100
Family Role in LBW Care After the Intervention		
Poor	5	16.7
Adequate	14	46.7
Good	11	36.7
Total	30	100

Table 2 shows a change in the distribution of the family's role in caring for low birth weight (LBW) infants before and after the provision of health education using audiovisual media. Before the intervention, the family's role was dominated by the poor category,

accounting for 15 respondents (50.0%), followed by the adequate category with 11 respondents (36.7%), and only 4 respondents (13.3%) in the good category. This indicates that half of the families had not yet performed their role optimally in caring for LBW infants prior to receiving education.

After the intervention, this distribution shifted in a more positive direction. The poor category decreased markedly from 50.0% to 16.7%, the adequate category increased from 36.7% to 46.7%, and the good category rose nearly threefold, from 13.3% to 36.7%. Accordingly, there was a reduction in the number of families in the poor category alongside an increase in the proportion of families in the adequate and good categories after the provision of health education using audiovisual media.

Table 3. Wilcoxon Signed-Rank Test of Family Role Before and After the Intervention

Family Role (After – Before)	n	Mean Rank	Sum of Ranks	Z	p-value
Negative ranks	4 ^a	12.00	48.00	-3.272 ^b	0.001
Positive ranks	20 ^b	12.60	252.00		
Ties	6 ^c				
Total	30				

As presented in Table 3, the Wilcoxon signed-rank test was employed to examine the difference in the family's role in caring for low birth weight (LBW) infants prior to and following the provision of health education through audiovisual media. The analysis revealed that, among the 30 respondents, 20 (positive ranks) demonstrated an improvement in their caregiving role, whereas 4 (negative ranks) exhibited a decline, and 6 (ties) showed no discernible change. The test produced a Z value of -3.272 with a corresponding significance level of $p = 0.001$. As this value falls below the predetermined threshold ($\alpha = 0.05$), the null hypothesis is rejected, indicating a statistically significant difference in the family's role before and after the intervention. The marked predominance of positive ranks over negative ranks (20 versus 4) further substantiates that the observed change occurred overwhelmingly in a favorable direction, namely, toward an enhanced family role in the care of LBW infants.

DISCUSSION

The Role of Families in LBW Care Before Health Education Using Audiovisual Media

The table above shows that before health education using audiovisual media was provided, the family's role in LBW care was categorized as Poor by 15 respondents (50.0%), Fair by 11 respondents (36.7%), and Good by 4 respondents (13.3%). This study's findings align with those of Hidayaturrahmi et al. (2024), who indicated that the majority of family roles were categorized as Poor (14 respondents, or 58.3%), and only a small proportion were categorized as Good. This is because respondents had limited experience caring for LBW

babies. This is consistent with research by Ramadhanty & Rokhaidah (2021), which states that individuals tend to experience limited information related to their health when first diagnosed, thus increasing efforts to improve literacy related to their condition.

Research by Arlym et al., (2024) indicates that most parents of children with LBW have sufficient knowledge about LBW. This is because parents are more focused on caring for their children than seeking care information. Notoadmojo (2018) explains that behavior in care is formed through an individual's knowledge of health through a learning process. Knowledge occurs after a person perceives an object through the eyes and ears. Education is a factor influencing knowledge. Education influences the learning process; the higher a person's education, the easier it is to receive information. However, someone with a low education does not necessarily have low knowledge. Several studies have shown that maternal education is significantly related to knowledge of LBW care.

One study found that mothers with higher education had better knowledge of LBW care than mothers with lower education (Purbasary et al., 2021). Another study found that mothers with higher education were better at implementing proper LBW care practices, such as properly cleaning the baby's chest and providing exclusive breastfeeding (Virginia et al., 2020; Hasandi et al., 2019). According to researchers, maternal knowledge regarding LBW is closely linked to health education provided in hospitals. Most mothers have not received health education from healthcare professionals, such as nurses or doctors, and therefore are not very knowledgeable about caring for children with low birth weight. In terms of educational attainment, some respondents had only a high school education and answered the questions incorrectly.

The Role of Families in LBW Care After Health Education Using Audio-Visual Media

After health education using audio-visual media, 5 (16.7%) families' role in LBW care was categorized as Poor, 14 (46.7%), and 11 (36.7%) were categorized as Good. This study's findings align with those of Hidhayanti & Aryani (2024), who demonstrated positive changes after educational intervention. The number of families categorized as Good after treatment increased to 17 respondents, or 70.8%. This is based on the fact that parents or families with high self-efficacy will have a strong commitment to carrying out their duties to improve the well-being of LBW infants.

A mother's self-efficacy to successfully carry out her role as a parent is influenced by the mother's age, health status, gestational age, and baby weight. The mother's perception of her ability to care for her baby, recognize and respond to the baby's behavior, and her satisfaction with her role as a mother. Self-confidence reflects a mother's competence and

maternal ability, which is influenced by several variables, including knowledge and skill acquisition, maternal psychosocial variables, maternal characteristics, and social support (Wulandari Leksono et al., 2021)

The implementation of family roles includes six main items: seeking information about breastfeeding, participating in decisions about infant feeding, choosing a location for postnatal checkups or immunizations, having a positive attitude toward marriage, and participating in various infant care activities (Islami & Khourouh, 2021). Several studies have shown that health education can improve mothers' knowledge of newborn (LBW) care. One study found that visual education on LBW can improve mothers' knowledge of LBW care, such as proper breast-cleaning and exclusive breastfeeding (Hidhayanti & Aryani, 2024). Another study conducted in India in 2020 found that face-to-face educational sessions using visuals can improve mothers' knowledge of LBW care, as well as their confidence and skills in caring for LBW (Rikayoni & Rahmi, 2023).

The study found an increase in knowledge regarding diaper changing. This was because nurses provided counseling by emphasizing respondents' weaknesses prior to the intervention. Health education can help mothers understand the importance of LBW care and how to perform it correctly. Furthermore, health education can also help mothers reduce their anxiety and stress when caring for their newborns.

The Effect of Health Education Using Audiovisual Media on the Family's Role in LBW Care at Mutia Sari Hospital, Duri, Riau

Based on the results of a study that examined the family's role in LBW care before and after health education using audiovisual media, data analysis using the Wilcoxon test showed a p-value of 0.001, a value <0.05 , indicating an influence of the family's role in LBW care before and after health education using audiovisual media. This Wilcoxon test result aligns with Rahmah et al., (2023), who showed that HE provided an effect on respondents' knowledge, as indicated by a p-value of 0.000. This is consistent with research by Hidhayanti & Aryani, (2024), who found that providing verbal information can improve the knowledge of parents of LBW babies.

Research shows that health education using audiovisual media has a positive effect on increasing mothers' knowledge about breastfeeding care. Research by Hasandi et al. (2019) used a breastfeeding module as an intervention for postpartum mothers. The results showed a significant increase in maternal knowledge after the intervention. A similar study by Hidhayanti & Aryani (2024), in Indonesia, compared the intervention and control groups. The intervention group received breastfeeding education through a group module. The results

showed an increase in the average maternal knowledge score regarding breastfeeding frequency, correct breastfeeding techniques, and breast care in the intervention group. Another study by Putri et al. (2025) was a breastfeeding education module for postpartum mothers to improve knowledge about maternal health. The results showed a significant increase in the average maternal knowledge score after the intervention. Low birth weight (LBW) care can be classified as a serious issue, where parents may assess different types of information differently (Syamsu et al., 2023).

Managing the flow and content of information provided to parents may also be challenging because each parent has a different ability to absorb the information provided. What works well for some parents may not work for others. Specifically, parental characteristics, such as gender, age, and previous parental experience, must be considered (Kong & Wang, 2021). Long-term hospitalization of premature infants with low birth weight (LBW) in the NICU is considered a "psychological crisis" within the family, causing feelings of helplessness and stress, especially for mothers. Parents of LBW infants admitted to the NICU experience high levels of anxiety and helplessness, lacking knowledge about how to interact with their infants during their stay (Hidayanti & Aryani, 2024). This phenomenon was observed during the study, where most mothers expressed concern about their infants' condition, particularly concerns about their infants' small size/weight or concerns about how to handle and care for them.

Benefits of individual behavioral development programs regarding care in the NICU, for example, empowering parents to care for their babies, teaching parents to care for their babies, teaching parents about their baby's signals, problem-solving and learning how to interact with their babies, have an impact on parental satisfaction. Parents also said that anxiety decreased, more confidence in caring for their babies, and increased parental independence when returning home after participating in the program (Paráiso - Pueyo et al., 2026). Visual media education was provided directly by presenting how to care for LBW babies. After that, demonstrations guided by health workers can carry out the correct steps for LBW care, such as cleaning the baby's chest and providing exclusive breastfeeding. Demonstrations can help mothers understand the correct steps and improve their skills. The next stage is practice, where, after watching the demonstration, mothers can practice LBW care with the guidance of health workers. Practice can help mothers improve their skills and feel more confident in caring for LBW. Evaluation is carried out by health workers to assess the knowledge and skills of mothers

after the practice. Evaluations can help healthcare professionals identify areas for improvement and provide additional guidance if needed.

CONCLUSION

This study concludes that health education delivered through audiovisual media exerts a meaningful effect on the family's role in caring for low birth weight (LBW) infants at Mutia Sari Hospital, Duri, Riau, whereby the family's role which was predominantly suboptimal prior to the intervention, reflecting limited knowledge, experience, and access to applicable health information underwent a substantial and favorable shift following the intervention, with the proportion of families demonstrating an adequate and good caregiving role increasing considerably while those in the poor category declined markedly, thereby indicating that the observed improvement did not occur by chance but emerged as a direct consequence of the educational intervention provided; these findings affirm that audiovisual-based health education constitutes an effective approach to strengthening families' knowledge, attitudes, and skills in LBW care, owing to its capacity to convey caregiving information in a more concrete, engaging, and comprehensible manner than conventional methods, and in doing so to foster family self-efficacy and encourage active involvement in supporting the optimal care of LBW infants.

In light of these findings, it is recommended that healthcare professionals particularly nurses incorporate audiovisual-based health education into routine maternal and neonatal care, complemented by demonstration, guided practice, and evaluation, so that families are better equipped to care for LBW infants throughout hospitalization and following discharge; that the hospital develop and provide standardized audiovisual educational media on LBW care as an integral component of its family education programs; that families actively engage in the educational programs offered to reinforce their role and confidence in caring for LBW infants; and that future research adopt a stronger design incorporating a control group and a larger, more diverse sample, assess the durability of the intervention's effect over an extended follow-up period, and examine additional determinants such as family self-efficacy and the long-term growth and development of LBW infants.

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