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The Effect of Education About The Kangaroo Mother Care (KMC) Through Video Media on The Knowledge and Attitudes of Mothers Having Low Birth Weight (LBW) Babies

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Abstract: LBW is a baby born weighing less than 2500 grams. In addition to assessing weight, LBW can also be evaluated from the size of the body length and head circumference. LBW causes various problems both in the short and long term. Therefore, this incident has become a global public health problem. Kangaroo Mother Care (KMC) is a treatment for low birth weight or premature babies by making direct contact between the baby's skin and the mother's skin or skin-to-skin contact, where the mother uses her body temperature to warm the baby. The main factor in implementing the Kangaroo Mother Care (KMC) is the adequate level of knowledge possessed by the mother, which significantly increases the success of the implementation of KMC. A positive and strong attitude from the mother towards KMC is identified as a key factor for the success of the implementation of KMC. The purpose of this study was to see the effect of the Kangaroo Mother Care (KMC) Through Video Media on the Knowledge and Attitudes of Mothers Who Have Low Birth Weight (LBW) Babies. This study used a pre-experimental design. The design used in this study was a group pretest-posttest design. The sampling technique in this study was nonprobability sampling with a purposive sampling method. The results showed that there is a significant influence between the knowledge and attitudes of mothers before and after being given education about Kangaroo Mother Care (KMC).

Keywords: BBLR, Kangaroo Mother Care (KMC)

INTRODUCTION

According to *the World Health Organization (WHO)*, LBW is a baby born weighing less than 2500 grams. In addition to assessing weight, LBW can also be evaluated from the size of the body length and head circumference. LBW causes various problems, both short-term and long-term. Therefore, this incident is a global public health problem. Problems often experienced by LBW include difficulty maintaining body temperature due to increased heat

loss, lack of subcutaneous fat, a large ratio of skin surface area to body weight, and reduced heat production due to inadequate brown fat and inability to shiver (Sadarang RAI, 2017).

This LBW can increase mortality, morbidity, and disability of neonates, infants, and children and, have long-term impacts on their future lives and can even cause death (Sadarang RAI, 2017). The high mortality rate in LBW is caused by complications, such as hypothermia, hypoglycemia, asphyxia, fluid and electrolyte imbalance, hyperbilirubinemia, anemia, malnutrition, and sepsis (Sadarang RAI, 2017).

Every year it is estimated that 15-20% of babies are born with LBW from 20 million births worldwide (Sadarang RAI, 2017). The prevalence of LBW in the world, according to *the World Health Organization*, is (15%) of all births in the world. The prevalence of LBW in Indonesia in 2020 was (35.3%), while the prevalence in West Java in 2020 was (10.8%) or 18,997 thousand incidents. The prevalence of LBW in Tasikmalaya Regency in 2024 was 1363 babies or (4.26%). Meanwhile, the number of LBW at KHZ Musthafa Hospital, Tasikmalaya Regency, in 2023 was 629 out of 2,313 births or 27.19%. Meanwhile, the number of LBW in 2024 was 631 out of 2381 births or 26.50%, a slight decrease from the previous year. With the many incidents of LBW in Indonesia, LBW is one of the causes of infant mortality during the neonatal period (Wahyuni, 2018).

This LBW condition is the leading cause of neonatal death in Indonesia in 2020 (Sadarang RAI, 2017). According to the Ministry of Health of the Republic of Indonesia, in 2022, the highest cause of neonatal death was also due to the condition of LBW babies, with a percentage reaching 34.5%, then followed by asphyxia at 27.8%, and other causes of death due to congenital abnormalities, infections, neonatal tetanus, and others (Ministry of Health, 2021). The prevalence of data in Tasikmalaya Regency in 2024, there were 70 babies (26.51%) who died due to Low Birth Weight (LBW). Based on data obtained from the KHZ Musthafa Regional Hospital, Tasikmalaya Regency, in 2024, there were 83 deaths, and 78.31% of them were Low Birth Weight (LBW).

Babies with LBW require care in an incubator at a relatively expensive cost. While the number of incubators available in several hospitals tends to be limited, an alternative to incubators for babies born with low birth weight is economical, quite effective, and efficient, namely the Kangaroo Mother Care (KMC) method. (Priyanti, R et al., 2015) (Danty et al., 2018).

Kangaroo Mother Care (KMC) is a treatment for low birth weight or premature babies by making direct skin contact between the baby and the mother's skin or *skin-to-skin contact*, where the mother uses her body temperature to warm the baby. KMC functions as an effective measure in preventing hypothermia in Low Birth Weight Babies (LBW). (Fatimah, S, 2018).

The main factor in the implementation of the Kangaroo Mother Care (KMC) is the adequate level of knowledge possessed by the mother, which significantly increases the success of the implementation of KMC. A positive and strong attitude of the mother towards KMC was identified as a key factor for the success of the implementation of KMC. Based on previous studies related to mothers' understanding of the management of LBW infant care at home, it was found that there was a lack of maternal awareness about temperature regulation and providing warmth for LBW infants. In contrast, mothers showed satisfactory knowledge related to breastfeeding for LBW infants. Furthermore, an evaluation of mothers' understanding of interventions aimed at preventing infection in LBW neonates revealed similar inadequacies (Danty et al., 2018).

One of the midwives' authorities in caring for LBW is to provide education about the Kangaroo Mother Care (KMC). One of the ways to provide education is through video media. At KHZ Musthafa Regional Hospital, digital educational media in the form of links/barcodes can be accessed at home so that mothers or families can watch the video again at home when they forget (Danty et al., 2018).

Based on data collected from interviews and observations conducted on January 18, 2025, in the Perinatology Room of KHZ Musthafa Hospital, Tasikmalaya Regency, it shows that mothers/families who have LBW babies who are treated in the room are still not familiar with how to care for LBW babies at home, especially using the kangaroo method. Of the 15 mothers/families interviewed, 12 people, or 80% of them, did not know about Kangaroo Mother Care (KMC).

METHOD

The type of research used is quantitative research with a descriptive design. *Pre-experiment:* The design used in this study is *a group pretest-posttest design*. The sampling technique in this study is *nonprobability sampling* by method *purposive sampling* with a sample of 53 respondents. The research was conducted in the Marwah Room and Perinatology Room of KHZ Musthafa Regional Hospital, Tasikmalaya Regency, in March 2025

RESULT AND DISCUSSION

Result

The description of the characteristics of the respondents consists of age, education, and occupation, which can affect the level of the mother's knowledge. The results of the univariate analysis of the description of the characteristics of the respondents are as follows:

Table 1 Respondent Characteristics

Characteristics	Frequency n=53	Percentage (%)
Mother's Age		
< 20 years	6	11,32%
20-35 years	30	56,60%
>35 years	17	32,08%
Education		
SD	12	22,64%
JUNIOR HIGH SCHOOL	22	41,51%
SMA	16	30,19%
College	3	5,66%
Work		
Work	17	32,08%
Does not work	36	67,92%

Based on table 1 shows that from 53 respondents, the distribution of most respondents' ages is 20-35 years old, totaling 30 people (56.60%). The distribution of the most recent mother's education is junior high school education, totaling 22 people (41.51%). The distribution of most mother's jobs is unemployed, totaling 36 people (67.92%).

Univariate analysis of knowledge and attitude description of the Kangaroo Mother Care (KMC) was conducted to determine the distribution of data and frequency of respondents' knowledge regarding care that can be applied to LBW infants. The results of univariate analysis of knowledge and attitude description of mothers towards Kangaroo Mother Care (KMC) in LBW infants are as follows:

Table 2 Frequency Distribution of Mothers' Knowledge and Attitude Levels Before and After Education

Variable		***Pretest***		***Posttest***	
		N	**%**	**n**	**%**
Knowledge	**Good**	30	56,60%	52	98,11%
	Enough	20	37,74%	1	1,89%
	Not	3	5,66%	0	0

	enough				
Attitude	**Positive**	26	49,06%	44	83,02%
	Negative	27	50,94%	9	16,98%

Based on table 2 shows that the respondents' knowledge before the education was carried out*(Pretest)*with a good category of 30 people (56,60%) and after education was carried out*(posttest)*. Almost all respondents answered correctly, namely 52 people (98,11%). There was an increase with a difference of 41.51%.

The respondents' attitudes before education were carried out*(Pretest)*with a positive attitude of 26 people (49,06%), and after education was carried out*(posttest)*, it increased to 44 people (83,02%). Respondents' attitudes before education*(Pretest)*with the negative attitude of 27 people (50,94%), and after education carried out*(posttest)*decreased to 9 people (16,98%).

Table 3 The Effect of Kangaroo Mother Care (KMC) Education on Increasing Mothers' Knowledge

Variable		***Pre-Test***		***Post-Test***		***p-value***	**OR (95%)**
		n	**%**	**n**	**%**		
Pengetahuan	**Baik**	30	56,60%	52	98,11%	0,00	1.03 (0.98-1.06)
	Cukup	20	37,74%	1	1,89%		
	Kurang	3	5,66%	0	0		
	SD	0.608		0.137			

Based on table 3 regarding the influence of Kangaroo Mother Care (KMC) education on increasing maternal knowledge, the results obtained were listen *Chi-Square* shows a significant number between *Pre-Test* with *Post-Test* with significance value*(2-tailed) p-value = 0.00 (p < 0.05).* The null hypothesis (H0) in this study was rejected, and the alternative hypothesis (Ha) was accepted. This shows that there is a significant influence between maternal knowledge before and after being given education about the Kangaroo Mother Care (KMC). From the analysis results, an OR value of 1.03 was obtained, meaning that the chance of a good category increased after education 1.03 times compared to before education.

The standard deviation (SD) value of mothers' knowledge before education was 0.608, while after education, it decreased to 0.137, which indicates that the level of distribution of mothers' answers became more consistent and tended to increase toward correct understanding after receiving education.

Thus, the test results show that education about the Kangaroo Mother Care (KMC) has a significant effect on increasing maternal knowledge, which is indicated by an increase in knowledge scores after the intervention.

Table 4 The Influence of KMC Education on Improving Mothers' Attitudes

Variable		***Pre-Test***		***Post-Test***		***p-value***	**OR (95%)**
		n	**%**	**n**	**%**		
Sikap	**Positif**	26	49,06%	44	83,02%	0,00	1.15 (1.04-1.23)
	Negatif	27	50,94%	9	16,98%		
	SD	0.505		0.370			

Based on table 4 results test *Chi-Square* shows a significant number between *Pre-Test* with *Post-Test*with significance value*(2-tailed) p value = 0.00 (p < 0.05).* The Null Hypothesis (H0) in this study is rejected, and the alternative hypothesis (Ha) is accepted. This shows that there is a significant influence on the mother's attitude before and after being given education

about the Kangaroo Mother Care (KMC). From the analysis results, an OR value of 1.15 was obtained, meaning that positive attitudes increased by 1.15 times compared to before education.

The standard deviation (SD) value of mothers' attitudes before being given education was 0.505, whereas after being given education, it decreased to 0.370, which indicates that there was an equalization or consistency of attitudes towards a more positive direction after education was given.

Thus, the test results show that education about the Kangaroo Mother Care (KMC) has a significant influence on improving mothers' attitudes toward baby care.

Discussion

Knowledge Overview

The results of this study indicate that the respondents' knowledge before the education was carried out*(Pretest)*with a good category of 30 people (56.60%) and after education was carried out*(posttest)*. Almost all respondents answered correctly, namely 52 people (98.11%); there was an increase with a difference of 41.51%.

The results of the research data showed that there were respondents who experienced a non-significant increase, namely from a score of 17 during the pretest and a score of 18 during the posttest. After further study, the mother was 29 years old and her last education was elementary school. According to the researcher, her age and minimal educational background made it a little difficult for the mother to understand the video presented by the researcher. In addition, there were also respondents who experienced a significant increase, namely a score of 9 during the pretest and 19 during the posttest after being studied that the mother was a high school graduate and was still 22 years old.

This increase in knowledge proves that health education is very effective in increasing mothers' understanding of the Kangaroo Mother Care (KMC). The education provided is likely to have provided clear and systematic information and is easy for respondents to understand.

According to Rogers' theory (1983)*, in the diffusion of Innovation*, knowledge is the initial stage in the process of changing a person's attitude and behavior. Education plays an important role as a trigger for such changes. Thus, the knowledge gained by the mother after education becomes the initial foundation for practicing the Kangaroo Mother Care (KMC) appropriately and consistently. The knowledge possessed by the mother about the Kangaroo Mother Care (KMC) can be influenced by the characteristics of the mother, including age, education, and employment status.

This is in line with research conducted by Wulandari (2020), which shows that health education about the Kangaroo Mother Care (KMC) can significantly increase maternal knowledge. In her study, maternal knowledge scores increased from an average of 55 to 85 after counseling, proving the effectiveness of education as a health promotion intervention.

So far, the knowledge of mothers who have LBW babies who are treated in the Perinatology Room of KHZ Musthafa Hospital about the Kangaroo Mother Care (KMC) is still limited due to the lack of previous socialization and minimal access to easily understood health information about the Kangaroo Mother Care (KMC). After education, almost all mothers showed an increase in knowledge. This shows that the educational method applied answers the need for information.

Attitude Overview

The results of the study showed that Respondents' attitudes before education*(Pretest)* positive attitude of 26 people (49,06%), and after education was carried out*(posttest)* increased to 44 people (83,02%). Respondents' attitudes before education *(Pretest)*with the negative attitude of 27 people (50,94%), and after education carried out*(posttest)*decreased to 9 people (16,98%).

The results of the research data showed that all respondents experienced an average increase, when the pretest and posttest were carried out, no respondents stood out.

This increase shows that education not only enriches knowledge but also influences the perspective, perception, and readiness of mothers to accept and implement the Kangaroo Mother Care (KMC). This shows the success of education in changing perceptions that may initially be based on ignorance, fear, or misinformation into a more open and supportive attitude.

According to Allport (1935), attitude is a mental and nervous readiness organized through experience, which provides a dynamic influence on individual responses to all related objects and situations. In this case, education plays a role as a new experience that is able to reshape the mother's attitude towards the practice of Kangaroo Mother Care (KMC).

This is in line with the research of Lestari et al. (2021), which shows that health education can significantly improve mothers' attitudes toward supporting the Kangaroo Mother Care (KMC). In the study, there was an increase in positive attitudes from 45% to 85% after being given counseling.

The attitude of mothers who have LBW babies who are treated in the Perinatology Room of KHZ Musthafa Hospital before being given education, the majority did not have a positive attitude towards the Kangaroo Mother Care (KMC); this could be due to lack of information, concerns about baby safety, and ignorance of the benefits of Kangaroo Mother Care (KMC). However, after receiving the right education, the mother's perception changed, indicating that the needs-based educational approach is very effective.

The Influence of Kangaroo Mother Care (KMC) Education on Increasing Mothers' Knowledge

The results of the study showed that education about the Kangaroo Mother Care (KMC) through video media had a significant effect on increasing maternal knowledge regarding care for LBW babies, which was indicated by an increase in knowledge scores after the intervention.

According to Notoatmodjo (2010), knowledge is the result of knowing through the senses that one has of an object. Sensing occurs through the five human senses, namely sight, hearing, smell, taste, and touch. Most knowledge is obtained through the eyes and ears. Knowledge is very important for the formation of a person's behavior.

In addition, Bloom groups knowledge into cognitive domains, which include six levels, namely, knowing. *(knowledge),* understand *(comprehension),* apply *(application),* analyze *(analysis),* synthesize *(synthesis),* and assess*(evaluation).* A good education will increase the level of knowledge from the level of knowledge to a higher level. Thus, the increase in the mother's knowledge score after being given education through video media reflects an increase in the mother's cognitive aspects, as explained by these theories. This shows that educational media such as videos can be an effective means of increasing mothers' knowledge about caring for LBW babies.

This is in line with the research conducted by Christina in 2017 entitled "Overview of Mothers' Knowledge about Fetal Development during Pregnancy at the Cahaya Medan Clinic," the sources of information obtained by mothers during pregnancy can be obtained from health workers, family, and friends, print media and mass media. Most of the knowledge of the respondents came from health workers. According to respondents in this study, many of them did not know about the Kangaroo Mother Care (KMC) because there was no counseling from health workers regarding this matter. Counseling about the Kangaroo Mother Care (KMC) is only given to mothers who have LBW babies, so information about this is not obtained by mothers from the beginning of pregnancy. Many mothers do not know that their children will be born with LBW, so there is no thorough preparation in dealing with this. The researcher asked each question directly to postpartum mothers who have LBW babies. The mother's

condition is not so healthy after giving birth, and the mother's psychology is still disturbed, making the mother unable to interact socially well; this is also the cause of the lack of knowledge that mothers get regarding the Kangaroo Mother Care (KMC).

Based on this study, it can be concluded that mothers who have LBW babies who are being treated at KHZ Musthafa Regional Hospital do not yet know about the Kangaroo Mother Care (KMC) well, both in terms of definition, benefits, and proper application.

So far, at KHZ Musthafa Hospital, there has been no Kangaroo Method Care (PMK) education modified with video media; education is given only verbally, while good knowledge is influenced by the delivery of information and experience gained. In certain situations, someone is forced to solve a problem; then, they will need as much information or knowledge as possible about it to be able to find solutions to solving health problems in children. The media used during counseling greatly influences the increase in knowledge; in this study, video counseling media is used. This method is a combination of hearing and sight, so the delivery of material is not only through words but with the addition of a video that can easily receive the material and can always remember the material presented (Oka, 2017).

Video media is one of the media that uses the senses of sight and hearing. Therefore, video media has benefits that can influence changes in a person, not only knowledge but also the person's attitude. The approach with this media has a big influence on a person, where they are able to change their attitude as a result of the learning process that has been carried out (Vidayanti et al., 2020). Video media is also a type of audio-visual media that relies on the senses of hearing and sight. Audio-visual media is one of the media that can be used in listening and learning. This media can increase a person's interest in learning because they can listen and see pictures at the same time. Daryanto (2012) stated that human absorption that only relies on the sense of sight is only around 83%, and the sense of hearing (ears) is 11%, while the rest is through the sense of taste 1%, the sense of touch 2% and the sense of smell 3%.

Not only that, another advantage of health education using video media compared to other media is that video media makes a very large contribution to changes in knowledge, especially in terms of information and persuasion. This aid provides stimulus to hearing and vision so that the results obtained are more optimal. This is reinforced by the research of Krisstanti & Wardani (2022), which compared video media with media *leaflets and* showed that respondents who received health education through video media experienced an increase in knowledge about reproductive health of 5.00±1.846, while respondents were given health education through video media. *Booklet* experienced an increase of 2,714±1,243. The data shows that respondents who received health education through video media experienced a higher increase compared to respondents who received information through video media *leaflets.*

Health education about Kangaroo Mother Care (KMC) given to mothers who have premature babies using counseling videos is one form of learning for mothers so that mothers will be more aware of the importance of this because the knowledge formed can be reflected in the actions of caring for premature babies and mothers can provide good care to their babies so that babies who are given Kangaroo Mother Care (KMC) will quickly improve their development and growth (Oka, 2017).

The Influence of Kangaroo Mother Care (KMC) Education on Improving Mothers' Attitudes

The results of the study showed that education about the Kangaroo Mother Care (KMC) through video media had a significant effect on improving mothers' attitudes towards caring for LBW babies, which was indicated by an increase in positive attitude scores after the intervention.

According to Saifuddin (2018), attitude is the readiness to respond positively or negatively to an object. Attitude contains motivation; attitude is not just a record of the past but also determines whether the mother should be pro and con towards something, determine what is liked, expected, and desired, and what should be avoided, especially in carrying out the Kangaroo Mother Care (KMC). So, the number of mothers who have LBW who have a positive attitude about the Kangaroo Mother Care (KMC) needs to be developed because this positive attitude will affect changes in attitudes that are better through observation and assessment of good role models of attitudes so that the positive attitude applied will provide benefits for LBW and accelerate the increase in baby weight and prevent complications and reduce client care costs.

The results of this study are the results of Sulifah's study (2021) entitled The Influence of Health Education on Kangaroo Care Method for Low Birth Weight Babies on Maternal Attitudes in the Perinatology Room of Bangil Regional Hospital. The results of the study showed a significant difference in attitudes before health education on the Kangaroo Care Method and after health education on the Kangaroo Care Method. Before providing health education on PMK, it was found that most respondents had a sufficient attitude category towards PMK, namely 16 respondents, a sufficient attitude category of 1 respondent, and a less than satisfactory attitude category of 1 respondent. In contrast, after health education on PMK, most respondents had a good attitude towards PMK, namely 17 respondents, and only one respondent had a sufficient attitude towards the Kangaroo Care Method.

According to Azwar (2016), attitudes are formed by three components, namely cognitive, affective, and conative components. The cognitive component is a presentation of what a person believes about what applies or what is true for the object of the attitude. Once that belief has been formed, it will become the basis of a person's knowledge about what can be expected from a particular object. Of course, this belief is formed precisely because of the lack or absence of correct information about the object of the attitude being faced. The existence of a positive/good attitude can be due to the knowledge and experience that they have gained so that they have the desire to be able to carry out Kangaroo Mother Care (KMC) because they know that carrying out Kangaroo Mother Care (KMC) is very important and also beneficial for babies with low birth weight.

According to Jamila (2018), knowledge is the main basic key for someone in determining the attitude that will be taken by someone; the more knowledge obtained, the more positive the results will be. The higher the knowledge, the better the attitude shown by the person; conversely, if knowledge is low, it will be in the form of a negative attitude, and the experience gained can also influence a person's attitude towards a particular object. Education. According to Notoatmojo (2013), one of the factors that influences knowledge is the level of education. The higher the education, the higher the knowledge possessed, and the ability to absorb information is easier.

In this study, it was found that most respondents had junior high school education (22 people), 16 people had a high school education, 12 people had an elementary school education, and three people had a college education. From the educational characteristics of most respondents, which were classified as good, the provision of information about the Kangaroo Care Method could be accepted and understood well so that there was an increase in the attitude category before and after health education about the Kangaroo Care Method. Although there were still respondents in the negative attitude category after being given health education, quantitatively, the attitude score of the respondents increased after being given health education.

In addition to education, age also affects a person's knowledge. With increasing age, there will be changes in the psychic and psychological (mental) aspects. The psychological aspect changes in terms of a person's level of thinking, which is increasingly mature and adult (Mubarak, 2007). In this study, most respondents were in the age range of 20-35 years (30

respondents); for women, this age range is a productive age where women experience emotional maturity, are able to think well and be responsible for their actions (Hurlock, 2001). Emotional readiness for the presence of a baby with LBW conditions, as well as the ability to think to receive information related to LBW care, affects the formation of good attitudes from mothers after being given health education about the Kangaroo Method Care (PMK).

According to Notoatmodjo (2012), a person's job can affect the way they think, act, and receive and process information, which ultimately has an impact on the formation of attitudes. In this study, most respondents were unemployed (36 people), and the rest were employed as many as 17 people. The mother's employment status also affects attitudes in responding to education, where unemployed mothers tend to have more time and attention to receive information and follow education optimally. Therefore, the condition of mothers who are unemployed allows the formation of a more positive attitude toward caring for LBW babies through the Kangaroo Care Method (PMK).

CONCLUSION

There is a significant influence between the implementation of education about Kangaroo Mother Care (KMC) on maternal knowledge and attitudes.

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