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LITERATURE REVIEW: THE EFFECTIVENESS OF TELEHEALTH-BASED HEALTH EDUCATION ON MOTHERS' ABILITY TO CARE FOR LOW BIRTH WEIGHT INFANTS

Hanny Krissanti[1*], Yuly Peristiowati[2], Agusta Dian Ellina[3], Asruria Sani Fajriah[3]

[1] Institut Ilmu Kesehatan STRADA,Indonesia
[2] Postgraduate, Institut Ilmu Kesehatan STRADA, Indonesia
[3] Department of Nursing and Midwifery, Institut Ilmu Kesehatan STRADA, Indonesia

Corresponding Author: hannykrissanti@gmail.com

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ABSTRACT

Background: Knowledge and skills of mothers and families in the care of low birthweight babies are very important to prevent mortality and morbidity, because LBW babies are at risk of experiencing health problems. Care is therefore required from when the baby is hospitalized until the baby is discharged. **Purpose:** To determine the effectiveness of using telehealth-based health education to increase the knowledge and skills of mothers in caring for LBW infants. **Methods:** This literature review was conducted based on the search for data sources and selection of articles with references used, namely Google Scholar and PubMed. The keywords used are telehealth OR miHealth OR app health AND low birth weight AND knowledge AND skills. The inclusion criteria for articles taken were those published in full text, in the period 2012-2021, quantitative research types, as well as articles with the main content being the use of health education media regarding the care of LBW babies. The search results contained 38 articles that had been adjusted to the inclusion criteria, there were 6 remaining articles. **Results:** knowledge and skills of mothers in caring for babies can increase after being given telehealth-based health education compared to conventional health education, namely leaflets and demonstrations. **Conclusion:** Health education based on telehealth is effective in increasing knowledge and skills so that mothers can care for LBW babies.

Keywords: telehealth, lbw, knowledge, skills

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INTRODUCTION

The prevalence of LBW in the world is 15.5% or about 20 million babies born every year (WHO, 2014) and most of them, or about 96.5%, occur in developing countries. Based on the 2017 Indonesian Health Demographic Survey (IDHS), the incidence of Low Birth Weight (LBW) in Indonesia reached 6.2%.

LBW infants are at high risk for health problems from birth, during hospitalization, and until they return home. According to Rustina (2015), premature infants are more likely to be hospitalized in the first year of life by 25–50% compared to term infants by 8-10%. Premature infants who had to be re-admitted in the first two weeks after discharge from the hospital due to aspiration of milk, diarrhea, and infection were 7.4% (Rustina *et al*., 2006). This happens because of the mother's unawareness and inability to anticipate the emergency condition of the baby at home. In addition, too early birth also causes parents not to prepare themselves to care for their baby, resulting in anxiety, stress, and insecurity.

It is necessary to intervene in the causes of child mortality to support efforts to reduce infant mortality in Indonesia (Rizki & Radityo, 2017). Nurses have a primary role in providing education in the form of discharge planning programs to help mothers overcome anxiety, stress, maternal insecurity and increase the insight and expertise of mothers in taking care of their babies (Beheshtipaour, Baharlu, Montaseri, & Ardakani, 2014).

The novelty of this state-of-the-art review lies in its specific focus on the effectiveness of telehealth-based health education for mothers treating low birth weight infants (LBWIs). While telehealth has gained attention as a promising approach for delivering healthcare services remotely, this review specifically examines its application in the context of health education for mothers of LBWIs. By exploring the current state of knowledge and skills enhancement in this population, the review contributes to a deeper understanding of the potential benefits and challenges associated with telehealth-based health education in this specific domain.

METHOD

Literature Search Strategy

The method used by the author is a literature review using two databases to search for literature sources in Google Scholar and PubMed. In this review, inclusion criteria are used, including research articles spanning 2015 to 2020 in the form of main articles, articles in full text, and research respondents. Based on the article search, the researcher found 36 articles based on keywords, and six articles were analyzed using a narrative descriptive approach in this paper. The search results are depicted in the PRISMA flowchart.

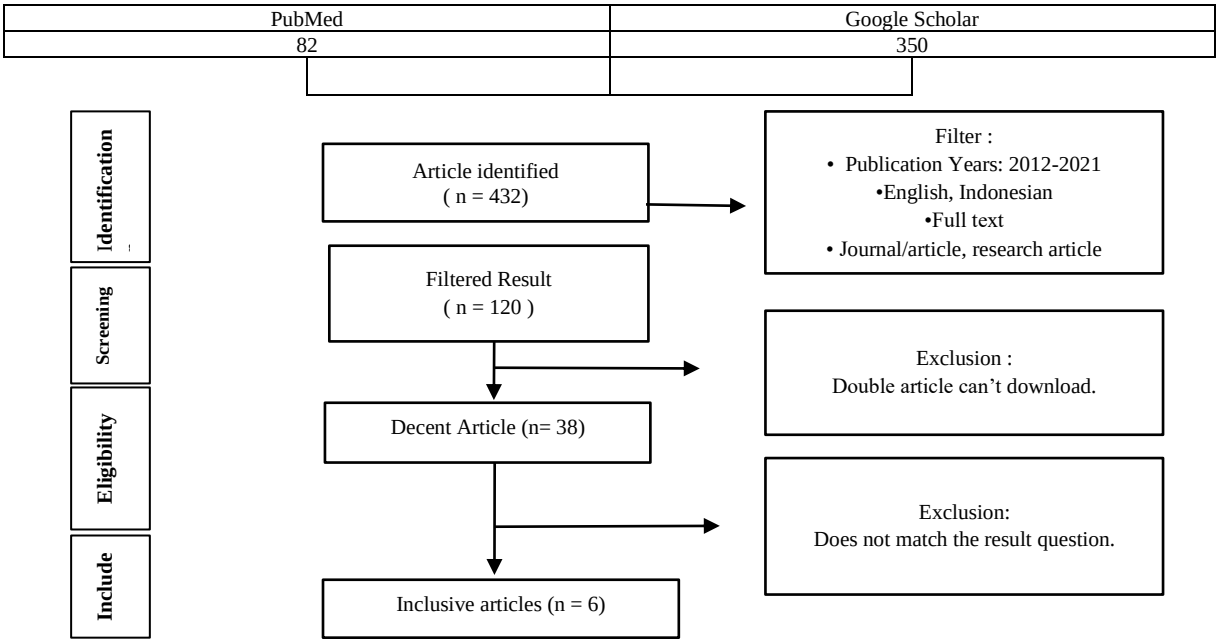

Chart 1. Article search algorithm.

Table 1. Analyzed articles.

Author Journal Name Year	Title	Method (Design, Sample, Variable, Instrument, Analysis)	Research Result	Conclusion	Data base
(Lameky *et al*., 2021) Forces Voice Health Research Journal Volume 12 Special Number, January 2021.	The Effect of Using the Smart Mother Application on Mother's Knowledge and Skills in Caring for Low Birthweight Babies (LBW) in Ambon.	Design: Experimental Sample: purposive sampling technique to 30 mothers who were divided into two groups Independent Variables: Smart mother app. Dependent Variables: Knowledge and Skills of Mothers in Caring for Low Birthweight Babies (LBW) Instruments: a questionnaire sheet consisting of two parts, namely skills and knowledge. using the observation sheet Analysis: Descriptive analysis used frequency distribution (categorical variable) and central tendency (numeric variable), the bivariate analysis used the Wilcoxon test because the data were not normally distributed, and multivariate analysis used the logistic regression test to determine the effect of confounding variables (age, education, occupation, and experience).	There was an effect on mother's knowledge about LBW care and mothers' skills in caring for LBW before and after the application is given.	This smart mother application has proven effective in increasing mothers' knowledge and skills. in caring for LBW babies compared to no media or oral alone.	Google Scholar
(Sari *et al*., 2020) European Journal of Molecular & Clinical Medicine ISSN 2515-8260 Volume 07, Issue 08, 2020.	The Effect of Android-Based Health Education on the Autonomy of Postpartum Primipara Mothers in Neonatal Care.	Design: Experimental Sample: The total sample of 19. The sampling technique used was purposive sampling. Independent variable: Baby care application Dependent variable: Knowledge, skills, and independence of respondents in neonatal care analysis: Using the Wilcoxon test and the Mann-Whitney test.	There is an effect on the independence of the mother in the care of primiparous post-partum neonates after being given android-based health education.	Health education using android such as Bubi Care can affect neonatal care in primiparous post-partum mothers independently. This application adds knowledge to improve the mother's ability to care for her baby independently every day. By using this application, respondents can easily, anytime, anywhere access information about baby care. This application can be used as an alternative media in health education.	PubMed
(Putri & Hilmanto, 2021) Nopi Anggista Putri, Dany Hilmanto, Zulvayanti Journal of Health Volume 12, Number 1, Year 2021.	The Effect of the "Mommy Nifas" Application on Increasing Mother's Knowledge and Skills.	Design: Experimental Sample: Sixty respondents Variable: Independent variable: the use of the postpartum mommy application Dependent variables: Improving Mother's Knowledge and Skills Data analysis using the chi-square test.	There is an effect of increasing skills and increasing the percentage of mothers' knowledge after using the postpartum mommy application.	The postpartum mommy application can be used as a as one of the additional media by health workers, especially midwives in conducting health education so that could improve the knowledge and skills of mothers in performing postpartum care.	Goggle Scholar

Continuation of Table 1. Analyzed articles.

Author Journal Name Year	Title	Method (Design, Sample, Variable, Instrument, Analysis)	Research Result	Conclusion	Data base
(Hägi-Pedersen *et al*., 2017). BMJ Open 2017; 7: e013024.	Multicenter randomized study of effects and experiences of early home program (PreHomeCare) for preterm infants using video consultation and smartphone app compared to in-hospital consultation: PreHomeCare study protocol.	Design: A randomized controlled study Sample: Variables: Independent variable: Mobile application and video communication Dependent variable: Exclusive breastfeeding parent /infant interaction parenteral confidence Analysis: using $\chi 2$ test and Fisher's exact test and regression models.	The use of mobile applications and video consultation systems in pre home care to provide parents with an experience in safe and secure early care at home and developed through clinical and parental evaluation.	This study contributes to meeting the needs of parents for support during early care and new knowledge of video for consultation and smartphone applications	PubMed
(Nayak *et al*., 2019) Journal of Advanced Nursing 2019	A randomized controlled trial on the effectiveness of mHealth (mobile/smartphone) based Preterm Home Care Program on developmental outcomes of preterms: Study protocol.	Design: RCT Sample: A total of 300 preterm Variables Dependent variable: Mobile health-based Preterm Home Care Program Dependent variable: improving parent-infant-interaction, growth, and development of preterm babies. Analysis: Mean/standard deviation, frequency/percentage and median/interquartile range. Parametric or non-parametric.	Support for the ongoing care of premature babies is very important for parents and their babies who are transitioning from the NICU to their homes. Mothers and public health Workers empowered with the promotion of the health of premature infants can be helped using cellular technology integrated into healthcare and improved outcomes, reducing mortality, morbidity, and disability associated with prematurity.	This study could pave the way for improving the model across countries and provide new insights into the integration between hospital and home preterm care using technology.	PubMed
(Lestari & Waslia, 2017)	The Role of Mother Cares Applications (MOCA) towards Knowledge and Parenting Skills in Stimulating Growth.	Design: True experiment Sample: Sixty respondents Variables: Dependent variable Analysis: Mann-Whitney test and Wilcoxon test ($p < 0.05$).	The MOCA application is a guide on smartphones in the form of animation to improve knowledge better than other methods.	This application stimulates babies aged 0-6 months in their growth and development and improves parents in their knowledge and skills	Google Scholar

The search results are limited to 2015-2020 and selected relevant articles to the research question. The keywords used in the search in the literature were as follows: telehealth OR app health telehealth OR app health OR mhealth AND low birth weight AND knowledge AND skill (Figure 1). A total of 432 which consists of 82 articles contained in PubMed and 350 articles contained in Google Scholar and 38 articles that meet the keywords and articles were identified, but only six articles discussed telehealth on the knowledge and skills of mothers caring for LBW infants (Table 1).

RESULT

The resulted of a literature search (Lameky *et al*., 2021) described the results of their research. The Smart Mother Application has proven to be effective in increasing knowledge and skills. There is a significant difference before and after the smart mother application use in the knowledge and skills of mothers caring for LBW. The smart mother application is part of the development of science and technology that leads to significant changes and toward a practical era. Using an Android-based smart mother application can make it easier for mothers or parents to improve their knowledge and skills in caring for LBW babies. This application focuses on health education and simultaneously allows mothers or parents to

use it as a pocketbook during hospital and home care. Use of the smart mother application has proven to be effective in increasing parents' knowledge and skills in caring for LBW babies compared to no media or oral only.

In another study by Sari *et al*., in 2020, there is an effect on the independence of the mother in the care of primiparous post-partum neonates after being given android-based health education. By using this application, respondents can easily, anytime, and anywhere access information about baby care. This application can be used as an alternative media in health education. It provided knowledge to empower primiparous postpartum mothers to independently carry out their baby daily. Putri & Hilmanto (2021) found in their study that there was an effect of increasing skills and increasing the percentage of mothers' knowledge after using the postpartum mommy application to care for mothers and their babies.

Research conducted by Lestari & Waslia (2017) found that MOCA, a guidance animation in the mobile phone, improved knowledge better than other methods. This research integrates mobile technology into healthcare by empowering mothers and community health workers. Applications can help and promote healthy preterm births and their developmental outcomes, reducing the mortality, morbidity, and disabilities associated with prematurity.

Further research by Hägi-Pedersen *et al*., (2017) contributed to this study contributes to meeting the needs of parents for support during early care and new knowledge of video for consultation and smartphone applications.

DISCUSSION

A theory by Notoatmodjo explained that knowledge and skills are formed after knowing beforehand. The information from the media will carry a powerful and persuasive message to provide an adequate basis for assessing something so that specific skills are formed. The method of education that is better than the use of words in providing information is the use of audio-visual media (Notoatmodjo, 2014).

Messages delivered using multimedia with a combination of appearance, sound, and movement will be more attractive and effective (Notoatmodjo, 2014). The form of animation is considered significant and effective compared to the use of pamphlets in increasing knowledge about providing long-term health information. Animated illustration forms can help improve the user's memory, understanding of the material, and satisfaction because it is considered more interesting and uses many senses (Lestari & Waslia, 2017).

The development of information media technology today proliferates and provides convenience for those in need. The information needed today is increasingly easily accessible by using computers and other devices as a learning medium. Making learning media is also easier because various software is available in the market. The software application can help us to develop learning media that are more interesting and easier. Media developers also make multiple adjustments according to user circumstances based on education and age, giving users more freedom to carry out mobile activities.

The mother's knowledge and skills are improved through the educational material provided as a stimulus. Changes in knowledge and skills occur when the stimulus is received and then converted into a response, namely the willingness to act. The use of telehealth or m-health based applications as a medium for health education is a guide on smartphones in the form of animation so that it can increase knowledge better than other methods. Improving individual skills begins by providing insight (Notoatmodjo, 2014).

Increase its acceptance if done repeatedly with high intensity (Notoatmodjo, 2014). Utilizing smartphones can help mothers be more skilled in parenting by using online-based applications to optimize parents' roles in caring for the baby, which can optimize the baby's growth and development (Nayak *et al*., 2019). Using this app has been proven to be an effective tool in mother's insight and skills in LBW care have increased compared to no media or oral only.

CONCLUSION

All 6 articles above support the effectiveness of using telehealth-based health education to increase the knowledge and skills of mothers in caring for LBW babies. This study will contribute new knowledge of whether video consultations (participatory guidance)

and smartphone applications (usable knowledge and data registration) address parental needs for support during early in-home care. The provision of health education through telehealth can be used to increase the insight and skills of mothers or parents so that they can care for LBW babies at home.

SUGGESTION

Telehealth can be used as a basis for developing health promotion intervention services, especially in cases of low birth weight (LBW) babies.

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CONFLICT OF INTEREST

The author has no conflict of interest.

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AUTHOR CONTRIBUTION

Author Hanny Krissanti as Data collection, study design, data analysis, manuscript writing, literature review, reference. Author Yuly Peristiowati as Supervision, data analysis, manuscript revision. Author Agusta Dian Ellina as Supervision, data analysis, manuscript revision. Author Asruria Sani Fajriah as Study design, data supervision, data analysis, manuscript revision.

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