
**Loving Breastfeeding for Mother on Purperium Periode
(An android-based educational media application)**

Meti Widiya Lestari ^{1(CA)}, Elvira Nafiani ², Dita Eka Mardiani³ Lia Nurcahyani⁴

^{1,2,3,4}Dapartement of Midwifery, Poltekkes Kemenkes Tasikmalaya, Indonesia

^{1,3,4}Health and Disaster Emergency (HADE) Center, Center of Excellent Poltekkes Kemenkes Tasikmalaya,
Indonesia

¹meti.weel@gmail.com (Corresponding Author), ²elviranafiani.en@gmail.com,

³dita.eka.m@dosen.poltekkestasikmalaya.ac.id, lianurcahyani17@gmail.com

ABSTRACT

The Reports in 2019 of exclusive breastfeeding in Ciamis is about 46.0% with the target of national is 50%. The low report is caused by the lack of knowledge of breastfeeding techniques. One of the efforts that can be done with innovations is using audiovisual based on Android applications. The purpose of the study was to determine the feasibility of Android-based Loving Breasfeeding. This study uses research and development methods which consists of 10 stages. Sampling used purposive sampling with a total of 60 people who were included in the small group trial phase of 8 people and the large group trial of 52 people. Data analysis used quantitative and qualitative. The result of this study is an android-based application which contains material about exclusive breastfeeding, breastfeeding techniques and breastfeeding videos. The material expert's assessment has a value of 71.5% including the appropriate category. The media expert's assessment of 87% is in the very decent category. The results of the small group trial of 94% are included in the very feasible category. The results of the large group trial of 94% were included in the very feasible category. The final result of this application uploaded in the google play store.

Keywords: Android Application; Exclusive breastfeeding; Mother in postpartum periode

INTRODUCTION

Puerperium is the period that begins after the birth of the placenta and will end when the uterus returns to its normal state which lasts for 42 days after delivery. This period will also be the start of a mother breastfeeding her baby where milk begins to be produced by the mother's breast. and functions to secrete breast milk (ASI). (Kusumastuti, Qomar, and Mutoharoh, 2017). Breast milk is the best food for babies because it contains many substances and protective factors that are important for the growth and development of babies which are given exclusively for the first 6 months of life and continued for two years (Mayasari, Astutui, Rukhuwa, 2020).

The reports of infants who were exclusively breastfed in Indonesia in 2019 was 67.74%, this figure has exceeded the 2019 Strategic Plan target of 50% (Healthy Profile of Ministry of Health, 2020) West Java Province occupies the 20th position with a coverage of 63.35% and Ciamis Regency occupies the second lowest position in the coverage of exclusive breastfeeding, which is 46.0% (West Java Health Office, 2020) which is not in accordance with the 2019 Strategic Plan target. This is due to many factors, one of which is a lack of knowledge about breastfeeding techniques. Knowledge is the basis for developing one's way of thinking which in turn provides changes to one's attitudes and behavior in taking action. The ability of mothers to breastfeed correctly strongly supports the success of mothers in breastfeeding with the correct technique. Then there is a difference in the ability of postpartum mothers to breastfeed between before and after being given health education about breastfeeding techniques with a p-value of 0.001. (Astuti, Anggarawati, 2020)

If the mother breastfeeds with the wrong technique, it will cause problems such as sore nipples, the milk that comes out is not optimal so that the mother is reluctant to breastfeed her baby and the baby's milk needs are not fulfilled. This situation shows that there are still many postpartum mothers who have not been able to use the correct technique, to achieve the success of exclusive breastfeeding, it is necessary to provide knowledge about correct breastfeeding techniques so that mothers can carry out correct breastfeeding actions and provide adequate breastfeeding for babies (wardiyah A, Puspitasari R, Susmarini N, 2019).

One way to provide knowledge or information about breastfeeding techniques is to provide counseling through alternative media that is audiovisual. At the beginning of 2020, the Corona Virus spread in Indonesia, even in the world. The existence of a pandemic has resulted in the community being given social distancing advice to avoid and break the chain of the spread of COVID-19. With this social distancing, access to essential services as well as

health promotion in hospitals, health clinics or home visits will be disrupted. (Ministry of Health RI, 15 June 2020) Meanwhile, experts agree that breastfeeding mothers should still breastfeed during the COVID-19 pandemic because there is immunological protection in breast milk to protect infants and toddlers from various diseases, including during the COVID-19 outbreak. (Ministry of Health. RI, July 13, 2020). Therefore, to overcome the limitations in the current conditions, there are innovative alternative options such as mobile phone applications, telemedicine, and other digital platforms, with health applications that can be easily accessed via smartphones or tablets based on Android, which can be a choice of health promotion media for health workers to clients (Wibowo B, 2020). Android is a popular mobile operating system and provides an open platform for application developers and can be used by various mobile devices (Efendi Y, 2018). According to Kominfo, there are approximately 103 million active smartphone users in Indonesia (Rahmayani I, 2018). Then one study stated that the use of technology in the health sector can increase public knowledge about health information quickly (Yani A, 2018). The results of a preliminary study in Cieurih Village, Cikupa District, obtained data on the coverage of exclusive breastfeeding of 44.7% (Ciamis District Health Office, 2020). The results of interviews with 10 postpartum mothers for the first 3 days to 3 months who already had a smartphone in October 2020 obtained data through questions given, namely 8 out of 10 postpartum mothers did not know and did not get information about breastfeeding techniques.

By using this android-based application, it is hoped that postpartum mothers can know about breastfeeding techniques and the importance of exclusive breastfeeding. Then here the midwife has an important role to provide midwifery care that focuses on women (woman center care) in a sustainable manner. In this case the form of implementation is by empowering postpartum mothers so that they can maintain their health independently, and also this application can be a participatory medium so that women can form concern for their lives, especially regarding exclusive breastfeeding. Based on the background that has been presented, the researcher is interested in conducting a research entitled " Loving Breastfeeding for Mother on Purperium Periode (Media Education Of Application Based on Android)"

METHODS

In this study using the Research and Development (R&D) method. This method has ten Steps in its completion which are useful for producing the product and testing the effectiveness of the product. This research was conducted in October 2020-February 2021 at the Cieurih Health Center, Ciamis Regency. The population in this study were 60 postpartum mothers for the first 3 days to 3 months. The sample used purposive sampling technique and was taken based on the inclusion and exclusion criteria. The sample was taken from 60 postpartum mothers divided by 2 for a small-scale trial of 8 people and a large-scale trial of 52 people (Arikunto, 2010). Data analysis using quantitative data obtained from questionnaires in the form of a feasibility assessment score (Likert scale) and qualitative data obtained from suggestions. The research instrument uses the Loving Breastfeeding application and validation questionnaires by material experts, media experts and postpartum mothers (Sugiyono, 2016). This research has received approval from the Health Research Ethics Committee and is declared ethically compliant with Certificate No.044/kepk-bth/III /2021.

RESULTS

This android-based Loving Breastfeeding application contains breastfeeding techniques that have passed validation by two material experts and one media expert. Furthermore, trials were conducted on small and large groups by postpartum mothers. This is done to find out the weaknesses and strengths of this application. Assessment of the Loving Breastfeeding application uses a questionnaire that has 10 questions with a rating scale using a Likert scale, namely 1-5 1 = very unfeasible, 2 = not feasible, 3 = quite feasible, 4 feasible, 5 = very feasible with a total score of 50 points.

THE 4th INTERNATIONAL CONFERENCE ON HEALTH POLYTECHNICS OF SURABAYA
(ICOHPS)
1st International Conference of Midwifery (ICoMid)

Tabel 1 Android-Based Educational Media Validation Results by Material Experts

No	The Aspect rated	Material Expert I		Material Expert II	
		Revision I	Revision II	Revision I	Revision II
1	Material equipment	3	4	4	4
2	Material breadth	2	4	4	4
3	Material depth	3	4	4	4
4	Suitability of media and materials	4	4	4	4
5	Concept and definition accuracy	2	4	4	4
6	Image and material accuracy	2	4	3	4
7	Accuracy of terms	3	4	3	4
8	Ease of understanding the language	3	4	4	4
9	Encourage curiosity	3	3	3	4
10	Creating the ability to ask questions	3	3	4	4
	Amount	28	38	37	40
	Average	2.8	3.8	3.7	4
	Presenting ASI	56	76	74	80
	Category	Decent enough	Worthy	Worthy	Worthy

Based on table 1, the results from the two material experts are 35.75 out of a total score of 50, if the percentage is 71.5%. So based on the Likert assessment score, the material in educational media is included in the appropriate category without revision..

Tabel 2 Android-Based Educational Media Validation Results by Media Expert

No	The Aspect rated	Media Expert	
		Revision I	Revision II
1	Input, button, and <i>output</i> layout <i>t</i>	4	4
2	Compatibility of <i>background</i> selection (<i>skins</i>)	5	5
3	The suitability of the selection of font size and type	5	5
4	Color Match	5	5
5	The attractiveness of the display button (<i>button</i>)	4	5
6	Regularity and consistency of the appearance of the button (<i>button</i>)	2	5
7	<i>Button</i> reaction constancy (<i>button</i>)	3	4
8	Ease of use of the program	5	4
9	Ease of choosing the program menu	4	4
10	Ease of entering and exiting the program	5	4
	Amount	42	45
	Average	4.2	4.5
	Presentation	84	90
	Category	Very Worthy	Very Worthy

Based on table 2, the results of the two media expert validation results have an average value of 4.35 out of a total score of 50, if the percentage is 87%. Based on the feasibility assessment on the Likert score, the media in educational media is included in the very feasible category

Tabel 3 Android-Based Educational Media Validation Results by Mother in Purperium

No	Responden	Result of questioner of respondents										Amount	Presentation (%)	Category
		1	2	3	4	5	6	7	8	9	10			
1	1	5	5	5	4	5	4	5	5	5	5	48	96	Very Worthy
2	2	5	5	5	5	4	5	5	5	5	5	49	98	Very Worthy
3	3	5	5	5	4	4	5	5	5	5	5	48	96	Very Worthy
4	4	5	5	5	5	4	5	4	5	5	5	48	96	Very Worthy
5	5	4	4	4	4	4	5	4	4	4	4	41	82	Very Worthy
6	6	5	5	5	5	4	5	5	5	5	5	49	98	Very Worthy
7	7	4	4	4	5	5	4	4	4	4	4	42	84	Very Worthy
8	8	5	5	5	5	5	5	5	5	5	5	50	100	Very Worthy
Amount											375			
Average											47	94	Very Worthy	

Based on table 3, it can be seen that 8 postpartum mothers rate the product with the final result obtained an average of 47 if the percentage is 94% and judging from the feasibility assessment reference, the Likert score is included in the very feasible category. Furthermore, a large-scale trial was carried out on 52 postpartum mothers, the average result was 47 if the percentage was 94% or the category was very feasible and could be used without revision

DISCUSSION

This study has received ethical approval with the number 044/kepik-bth/III/2021. Based on the results of the research conducted, the results of the development of an android-based application, namely Loving Breastfeeding education media, were designed through ten stages including: The first step is the potential and problems by conducting a preliminary study of the interview results obtained data, namely 8 out of 10 postpartum mothers have not received health information or counseling in particular regarding breastfeeding techniques and the coverage of exclusive breastfeeding there is still below the strategic plan target of 44.7%. So that researchers are interested in dealing with it by making an android application regarding breastfeeding techniques, especially there is the potential for postpartum mothers to have a smartphone so that it can be used to overcome their health problems Then data collection is to determine the material discussed in this application, namely breast anatomy, lactation physiology, understanding exclusive breastfeeding, benefits of exclusive breastfeeding for babies, mothers and the social environment, videos on breastfeeding steps, lactation management during the covid-19 pandemic, breastfeeding techniques include; the position when the mother is breastfeeding, the attachment of the baby, the frequency and duration of breastfeeding, signs of sufficient breast milk and how to burp the baby, then breastfeeding problems and breastfeeding myths and facts.

The third step is designing the product using App Inventor, Corel Draw, and Adobe Photoshop, then for the background color using two colors, namely yellow and green to give a sense of enthusiasm and relaxation when using this application, then according to (Sasongko NM, Suyanto M, Kurniawan PM, 2020) yellow means giving a feeling of happiness and enthusiasm then green is able to give a relaxed atmosphere and openness in communication so that these two colors are suitable for use in educational media applications. Then there is a background that sounds when the application is opened, this is supported because the use of music can attract users' attention, especially in providing health promotion so that users do not feel bored (Jatmika DE, et al., 2019) The fourth step is design validation by two material experts, namely Mrs. Nurul Fadilah, SST as staff of the Family Health and Nutrition section of the District Health Office. Tasikmalaya and Mrs. Siti Saadah M, SSiT, MPH as lecturers of Midwifery Poltekkes Kemenkes Tasikmalaya, from the results of both obtained a score of 35.75 out

**THE 4th INTERNATIONAL CONFERENCE ON HEALTH POLYTECHNICS OF SURABAYA
(ICOHPS)
*1st International Conference of Midwifery (ICoMid)***

of a total score of 50, if the percentage is 71.5% then it is included in the appropriate category. Then validation from media experts, namely Mr. Fadil Ahmad J, SKM, MPH as a lecturer at RMIK Poltekkes Kemenkes Tasikmalaya obtained an average validation result of 4.35 out of a total score of 50, if the percentage is 87%, it is included in the very feasible category.

The fifth step is the first design revision by a material expert, there are suggestions such as material using renewable sources then images that are not personal results include the source. The existence of references or library sources is a must in scientific works and becomes a reference material used by authors to strengthen support for the arguments presented (Djuandi, 2017) then the image in the application uses the researcher's own photo and uses original images instead of animations. This opinion is supported because the use of these images can avoid misunderstanding/understanding or misinterpretation and can clarify what is explained and can be more easily captured (Jatmika DE, et al., 2019). Then from media experts, namely the existence of a home button on the application, this is supported by research that the addition of a home button makes it easier for users to return to the initial menu (Samartono, Astuti H, 2018) after that the color in the background of the sub menu is distinguished by using yellow and red. According to research, the characteristics of the color red are strength, love, and affection. And yellow shows happiness, then using this color can make it easier for users (Ghiffary E N M, et al., 2018)

The sixth step is testing the product on 8 postpartum mothers and it is obtained with an average final result of 47 if the percentage is 94%, it is included in the very feasible category. Then the seventh step is product revision, namely suggestions from small group trials, namely explanations that are not accompanied by icon images. According to one researcher, the icon is a sign that can describe the main characteristics to make it easier for users and provide an overview of the existing explanations (Samartono, Astuti H, 2018). The eighth step is the use trial which was carried out on 52 postpartum mothers. The average result was 47, if the percentage was 94%, it was included in the very feasible category and could be used without revision. The ninth step of design revision is because at the large-scale trial stage there is no revision so this stage is not carried out in this study, the last is the tenth step of mass production of the Loving Breastfeeding Application which is suitable for use. Here's the link to access the Loving Breastfeeding application on the Google PlayStore as follows:



https://play.google.com/store/apps/details?id=appinventor.ai_ridhuan_volcano.Loving_BF_copy

CONCLUSION

This research produces a product through ten steps of Research and Development of an Android-based Loving Breastfeeding application to provide information about breastfeeding techniques and the importance of exclusive breastfeeding for postpartum mothers. Then this research has limitations, namely the absence of two-way communication, and the material experts such as breastfeeding consultant. This Loving Breastfeeding android-based educational media application, in the future, will be developed in the addition of materials or other educational features, the existence of two-way communication in the application by involving breastfeeding consultants

REFERENCES

- Ezeah, C., Fazakerley, J. A. and Roberts, C. L. (2013) 'Emerging trends in informal sector recycling in developing and transition countries', Waste Management. doi: 10.1016/j.wasman.2013.06.020.
- Kusumastuti, Qomar L U, Mutoharoh S. (2019) Kombinasi Pijat Woolwich dan Oksitosin terhadap Produksi ASI Ibu Post Partum, 12(1):60-66. Tersedia dari: Journal Health of Science <file:///C:/Users/user/Downloads/553-Article%20Text-1482-3-10-20190211.pdf>
- Mayasari W, Astuti D A, Rukhuwa S. (2020) Penyuluhan tentang Teknik Menyusui pada bu Menyusui, 2(4):216-219. Terdiri dari: Jurnal Pengabmas Masyarakat Sehat [file:///C:/Users/user/Downloads/1366-3335-1-SM%20\(1\).pdf](file:///C:/Users/user/Downloads/1366-3335-1-SM%20(1).pdf)
- Kementerian Kesehatan RI. (2020) Profil Kesehatan Tahun 2019 Jakarta: Kementerian Kesehatan Republik Indonesia. hlm 256. Tersedia dari: <https://www.kemkes.go.id/folder/view/01/structure-publikasipusdatin-profil-kesehatan.html>
- Dinas Kesehatan Provinsi Jawa Barat. (2020) Profil Kesehatan Tahun 2019. Bandung: Dinas Kesehatan Provinsi Jawa Barat. 05 Oktober 2020. hlm 107. Tersedia dari: <http://diskes.jabarprov.go.id/dmdocuments/efb4e9062fb60c5a21c7370539c1011a.pdf>
- Astuti Y, Anggarawati T. (2020) Pendidikan Kesehatan Teknik Menyusui terhadap Peningkata Kemampuan

Menyusui pada Ibu Primipara, 3(1):26-33. Tersedia dari: Indonesia Journal of Nursing Research <file:///C:/Users/user/Downloads/904-2848-2-PB.pdf>

Wardiyah A, Puspitasari R, Susmarini N. (2019) Peningkatan Kemampuan Menyusui pada Ibu Post Partum di Wilayah Kerja Puskesmas Kotabumi II, 1(2):125-139. Tersedia dari: Malahayati Nursing Journal <file:///C:/Users/user/Downloads/1222-3312-1-PB.pdf>

Kemkes RI. (2020) Pedoman bagi Ibu Hamil, Ibu Nifas, dan Bayi Baru Lahir Selama *Sosial Distancing*. Jakarta: Kementerian Kesehatan Republik Indonesia. 15 Juni 2021. hlm 16. Tersedia dari: <https://covid19.kemkes.go.id/protokol-covid-19/pedoman-bagi-ibu-hamil-ibu-nifas-dan-bbl-selama-social-distancing/>

Kemkes.RI. (2020) Pedoman Pencegahan dan Pengendalian Coronavirus Disease (COVID-19). Direktorat Jenderal Pencegahan dan Pengendalian Penyakit. 13 juli 2020 tersedia dari: <https://covid19.kemkes.go.id/protokol-covid-19/kmk-no-hk-01-07-menkes-413-2020-ttg-pedoman-pencegahan-dan-pengendalian-covid-19>

Wibowo B. (2020) Pemanfaatan Teknologi Informasi dalam Rangka Pencegahan Penyebaran Covid-19. Jakarta: Kemenkes RI. Tersedia dari: https://persi.or.id/wpcontent/uploads/2020/06/materi_drbambangw_dirjenyankes_telemedicine.pdf

Efendi Y. (2018) Rancangan Aplikasi Games Edukasi berbasis Mobile Menggunakan App Inventor; 2(1):39-48. Tersedia dari: Jurnal Intra-Tech <https://www.journal.amikmahaputra.ac.id/index.php/JIT/article/view/24>

Rahmayani, I. (2018) Indonesia Raksasa Teknologi Digital Asia. Kementerian Komunikasi dan Informasi Republik Indonesia. Tersedia dari: https://kominform.go.id/content/detail/6095/indonesia-raksasa-teknologi-digital-asia/0/sorotan_media

Yani A. (2018) Pemanfaatan Teknologi dalam Bidang Kesetahan Masyarakat, 8(1):97-102. Tersedia dari: Promotif Jurnal Kesehatan Masyarakat <https://pdfs.semanticscholar.org/7380/38dde0de1bdc29786b176ab16799dd4e4166.pdf>

Dinas Kesehatan Kabupaten Ciamis. (2020) Profil Kesehatan Tahun 2019. Ciamis: Dinas Kesehatan Kabupaten Ciamis;hlm 77

Arikunto, S. (2010) Prosedur Penelitian, Suatu pendekatan Praktek. Edisi Revisi V. Jakarta: Rineka Cipta.

Sugiyono. (2016) Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Cetakan ke-23. Bandung: Alfabeta cv. hlm 334.

Sasongko N M, Suyanto M, Kurniawan P M. (2020) Analisis Kombinasi Warna pada Antar Muka Website Pemerintah Kab. Klaten, 12(2):125-133. Tersedia dari: Jurnal Teknologi Technoscientia <file:///C:/Users/user/Downloads/edhy-sst-journal-manager-technocentia-vol-12-no-2-04-hal-125-133-nurcahyo-dkk-amikom.pdf>

Jatmika Dwi E, et al. (2019) Buku Ajar Pengembangan Media Promosi Kesehatan [e-book]: Yogyakarta: K-Media: Hlm. 2-160 Tersedia dari <http://eprints.uad.ac.id/15793/1/Buku%20Ajar%20Pengembangan%20Media%20Promosi%20Kesehatan.pdf>

Djunaidi. (2017) Sumber Rujukan sebagai Referensi yang Mendukung Karya Tulis Ilmiah bagi Perpustakaan, 33(2):01-11. Tersedia dari: Jurnal Keperpustakaan dan Masyarakat Membaca <file:///C:/Users/user/Downloads/7522-16928-1-PB.pdf>

Samartono, Astuti H. (2018) Penggunaan Poster sebagai Media Komunikasi Kesehatan, 15(1):18-11. Tersedia dari: Jurnal Komunikologi <https://www.esaunggul.ac.id/wp-content/uploads/2019/03/2.-Penggunaan-Poster-Sebagai-Media-Komunikasi-Kesehatan.pdf>

Ghiffary E N M, et al. (2018) Analisis Komponen Desain Layout, Warna dan Kontrol pada antarmuka pengguna Aplikasi Mobile berdasarkan kemudahan pengguna (Studi kasus : Aplikasi Olride), 7(1):143-148. Tersedia dari :Jurnal Teknik ITS <https://core.ac.uk/download/pdf/267880979.pdf>