

Original Research Article

EFFECT OF IMPLEMENTING THE ANDROID-BASED APPLICATION “CAKOASI.ID” (COMPLEMENTARY THERAPY DISC) ON MOTHER'S SELF-EFFICACY IN OVERCOMING BREASTFEEDING PROBLEMS

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Article Info:

Received: October, 19th, 2024

Revised: October, 31st, 2024

Accepted: May, 7th, 2025

DOI:

<https://doi.org/10.36720/nhjk.v14i1.692>

Abstract

Background: Breastfeeding coverage in Indonesia is still low, including Padang City, especially in the Andalas Health Center working area, which is 51.1%, has not reached the national target of 90%. Self-efficacy is one of the main factors in increasing exclusive breastfeeding behavior. Self-efficacy is influenced by the mother's knowledge about how to overcome breastfeeding problems. Increasing knowledge can be done through the innovation of complementary therapy disc applications that can be accessed by mothers via Android.

Objectives: This research aims to determine the effectiveness of implementing the cakoASI.id application on the self-efficacy of breastfeeding mothers in overcoming problems in breastfeeding.

Methods: This research uses a pre-experimental design method with a one group pre-posttest design approach. This research will be carried out for six months in the Andalas Community Health Center working area. The sample in this study was breastfeeding mothers with babies aged <6 months. Purposive sampling technique will be used to determine the sample. The instrument that will be used is a questionnaire to determine self-efficacy. This research will be carried out within one year. The research results will be processed using the paired T test statistical test.

Results: It was found that the mother's self-efficacy before was 41 and after was 59.8 with a p value of 0.000 ($p \leq 0.05$) which means that there is an influence of the use of the Android-based application intervention "cakoASI.id" on the self-efficacy of breastfeeding mothers.

Conclusion: There is an effect of using the android-based application intervention "cakoASI.id" on the self-efficacy of breastfeeding mothers.

Keywords: *Android Application, Breastfeeding Mothers, Self- efficacy*

INTRODUCTION

Early initiation of breastfeeding and exclusive breastfeeding help children survive and build the antibodies they need to be protected from various diseases (Pramanik et al, 2020). Exclusive breastfeeding for up to 6 months and continued for up to 2 years can reduce infant morbidity and mortality, reduce the risk of chronic diseases, and help infant development (Ministry of Health, 2018). Infants are only given ASI, without additional fluids such as formula milk, orange juice, honey, tea, water and without additional solid foods such as bananas, papaya, porridge, milk, biscuits, rice porridge and tim, for 6 months (Mufdlilah, 2017).

According to the World Health Organization, the coverage of exclusive breastfeeding in 2021 worldwide was only around 44% during the 2015-2020 period. The proportion of exclusive breastfeeding in infants aged 0-6 months in Indonesia was only 71.5% with a target of 80% (Ministry of Health, 2021). Based on the Statistics Agency in 2021, the coverage of exclusive breastfeeding in West Sumatra Province was 74.6%. The coverage of exclusive breastfeeding in Padang City in 2022 was only 67.7% and this figure has not reached the national target of 90%. Exclusive breastfeeding is still below the target that has been set (Padang City Health Office, 2022). Breastfeeding that does not reach the target can have a negative impact on infant health. Breastfeeding can prevent 1/3 of upper respiratory tract infections (URTIs), diarrhea can decrease by 50%, and severe intestinal disease in premature babies can decrease by 58%. In mothers, the risk of breast cancer can also decrease by 6-10% (Fadhila & Ninditya, 2016).

Factors that influence exclusive breastfeeding in the form of support from various parties can reduce various challenges for breastfeeding mothers and overcome mothers' doubts about breastfeeding their babies. The mother's beliefs and perceptions

about the baby's satisfaction when breastfeeding are the strongest positive determinants that influence the success of exclusive breastfeeding. There is a significant relationship between the mother's self-efficacy in the process of breastfeeding and the mother's perception of the lack of breast milk to meet the needs of her baby (Kurniawan, 2013).

Self-efficacy is one of the main factors to increase the behavior of exclusive breastfeeding in breastfeeding is the mother's belief to assess herself about her ability to breastfeed her baby. Factors that influence self-efficacy include achievement accomplishment, vicarious experiences, verbal persuasion, and psychological responses. Self-efficacy of mothers who feel unable to provide breast milk is the main factor for mothers not to provide exclusive breast milk or stop breastfeeding prematurely (Fata & Rahmawati, 2016).

The role and impact of Self-efficacy is quite large on the practice of breastfeeding, so there needs to be an effort to increase the mother's self-efficacy for breastfeeding. Self-efficacy is influenced by the mother's knowledge about breastfeeding and efforts to overcome breastfeeding problems. Providing information can be done with an alternative provision of practical education through the cakoASI.id application in the form of an android-based complementary therapy disc that can be quickly accessed by breastfeeding mothers.

In this era of computerization, information technology, especially computers and androids, has developed very rapidly and has become embedded in people's lives. Educational media in the form of books is considered to be difficult because users have to search for words that are not understood manually. Another weakness is that books cannot keep up with current developments. But with computerization technology and smartphones, all information can develop very quickly (Mustakim et al., 2019). Nowadays,

the use of android is not only as a tool for communication, but also used as a learning medium in health promotion (Budianto, 2016). Health promotion using android-based applications is currently often used to convey information and education.

The cakoASI.id application is an innovative android-based application that aims to increase the self-efficacy of breastfeeding mothers regarding efforts to overcome breastfeeding problems. In the cakoASI.id application, there is a complementary therapy disc that can be rotated to determine the solution to the problem complained about by the mother. Some non-application disc innovations that have existed previously are contraception discs, nutrition discs and food discs (Femyliati & Kurniasari, 2022). The disc is in a circle shape consisting of two parts. The back of the disc contains the mother's problems and complaints, while the front is in the form of a circular disc that can be rotated with a choice of complementary therapies. The complementary therapy provided is in accordance with the physical and psychological problems felt by the breastfeeding mother. The researcher also attached a contact person on the counseling page, with the aim that if the target has questions to the researcher, they can carry out intrapersonal counseling through the contact person listed in the application.

The cakoASI.id application is one effort to provide information and learning which is expected to increase the knowledge and self-efficacy of mothers regarding complementary therapies to overcome problems. Some complementary therapies that can be done on breastfeeding mothers are warm compresses, oxytocin massage, rolling massage, cabbage leaf compresses, banana heart vegetables and aromatherapy (Altika & Kasanah, 2021). The complementary therapy disc can be rotated and immediately shows what therapy can be done to overcome the mother's problem immediately.

Many studies have been conducted by providing education using various media to increase exclusive breastfeeding, but there are still few that develop android-based application media as research media. One of the studies that has been conducted using android-based application media on exclusive breastfeeding is the study of Fentri Heryati Budianto (2016) which examined the role of husbands in exclusive breastfeeding using an android-based application. The results of the study showed that the android-based application media "Father of Breastfeeding" is effective in increasing the role of husbands in exclusive breastfeeding (breastfeeding father) (Budianto, 2016).

Another study that supports this study is the study of Elvinda and Suryantara in 2022 with the title effectiveness of the android-based application "smart pregnant women" to increase the knowledge of breastfeeding mothers about exclusive breastfeeding. The difference in knowledge scores before and after the intervention was 2.23 with $p = 0.000$, so it was concluded that the application as an educational medium about exclusive breastfeeding was effective in increasing the knowledge of breastfeeding mothers (Elvina & Suryantara, 2022).

Breastfeeding coverage at Padang City Health Centers based on data from the Padang City Health Office in 2022, infants aged 0-6 months who were recorded in the 2022 breastfeeding registration register were 13,148 people and received exclusive breastfeeding as many as 9,065 people (67.7%). Of the 23 Health Centers, the three Health Centers with the lowest exclusive breastfeeding rates were the Anak Air Health Center at 29.2%, the Andalas Health Center at 51.5% and the Lubuk Begalung Health Center at 58.7% (Padang City Health Office, 2022).

Objective(s): The purpose of this study was to determine the effect of implementing the cakoASI.id application on the self-efficacy of breastfeeding mothers.

METHODS

Study Design

This research used a pre-experimental design with a pretest-posttest without control group.

Setting

This research was conducted in the on Juni-November 2023 in the working area of Puskesmas Andalas.

Research Subject

The population in this research is postpartum mothers who breastfeed their babies in the working area of Puskesmas Andalas Padang. According to Sugiyono (2011) stated that the sample size for simple research that uses an experimental group, the number of sample members is between 10 and 20 people. To anticipate drop out, 10% is provided as a reserve sample. The number of samples taken is 22 people. Two people are the backup sample. The criteria of the sample is to be willing to be a respondent, fall into the category of early postpartum mothers (24 hours to one week after delivery), the respondent is able to communicate, see, and hear well. Mother is willing to follow the research procedure from beginning to end. As for the exclusion criteria, it is a mother with postpartum complications. Sampling in this research is a non-probability sampling technique that is purposive sampling.

Instruments

The first measurement tool used in this research is the collection of sociodemographic data using a structured questionnaire that covers (age, education level, occupation and parity). BSE-SF (Breastfeeding Self-Efficacy Scale Short Form) was used to measure self-efficacy.

Intervention

The Data Collection Procedure started with the design and content of the cakoASI.id application in the form of the main page, the

information page of ASI problems, the complementary therapy page, the researcher conducted a validity and reliability test on 3 experts (expert judgment) to assess the validity of the construct and the existing content or material in the application and leaflet. The results of the experts' assessment were processed using Aiken's V (content validity coefficient), where from 3 raters and the highest value with an error rate of 5%, the result of the V index was 0.91, so it can be concluded that the material and animation of the application is declared valid. The implementation stage started with the researcher conducting a pretest to assess the self-efficacy that the respondents felt by using the BSE-SF (Breastfeeding SelfEfficacy Scale ShortForm) instrument developed by Bandura in 1997. BSES-SF is an excellent instrument for measuring breastfeeding self-efficacy and is considered capable of identifying mothers' self-confidence during breastfeeding. BSES-SF is a questionnaire containing 14 items of statements about beliefs and self-confidence in breastfeeding. Each item has a 5-point Likert scale and is then added up to obtain a total score ranging from 14–70. Siti Awaliyah's study in 2019 used BSES-SF if the total score was less than 55 it was categorized as low and if the total score was more than 56 it was categorized as high. Then the researcher applied the "cakoASI.id" application with a duration of 60 minutes, 4 times in one week, and then the researcher conducted a posttest assessment self-efficacy perceived by respondents using the BSE-SF instrument (Breastfeeding Self-Efficacy Scale Short Form)

Data Analysis

Data was analyzed using SPSS software (Version 25.0; Chicago IL USA), to describe the data of age, education level, occupation and parity and breastfeeding history, then frequency and percentage distributions were used. For further analysis to find out the

difference between the mean value of pretest and posttest using statistical test Paired T Test.

Ethical Consideration

The procedure in this research involving human participants with the intervention of cakoASI.id has been approved and declared in accordance with the ethical standards of the Health Research Ethics Committee (KEPK) with registration number (SKep/534/KEP/XI/2023). All participants in this research have received an explanation and expressed their willingness to sign the informed consent given.

RESULTS

Based on table 1. It can be seen that the characteristics of breastfeeding mothers in terms of age are found to be mostly reproductive age mothers that are 25-35 years old (81.8%). More than half (59.1%) of mothers have secondary education (high school equivalent) and work (68.2%). Most of them had a parity of more than 1 and more than half of the mothers had a history of exclusive breastfeeding (54.5%).

Table 1. Characteristics of Respondents

Characteristics	N	%	
Age	25-35	18	81.8%
	> 35 atau < 25	4	18.2%
	education		
	Basic Education	3	13.6%
	Secondary education	13	59.1%
	Higher education	6	27.3%
Job	Work	15	68.2%
	Doesn't work	7	31.8%
Parity	1	5	22.7%
	>1	17	77.3%
History of exclusive breastfeeding	yes	12	54,5%
	No	10	45,5%

Based on table 2, it can be seen that the average self-efficacy before the intervention was 41 with a standard deviation of 4.37. The maximum pretest self-efficacy is 50 and the minimum is 34. Based on table 5.3, from 22 respondents, the average self-efficacy after the intervention of the Android-based application "cakoASI.id" was 59.8 with a standard deviation of 3.4 and a minimum value of 55 and a maximum value of 67.

Table 2. Average Self Efficacy of Breastfeeding mother before and after the Implementation of the Android Base Application intervention cakoASI.id

	N	Mean	Min	Max	SD
Pretest	22	41	35	50	4.37
Posttest	22	59.8	55	67	3.4

Based on table 3, it can be seen that from 22 respondents, the average value of Self-Efficacy was obtained before the intervention of the application of the android-based application "cakoASI.id" Against the Self-Efficacy of breastfeeding mothers was 41 and after the intervention of the application of the android-based application "cakoASI.id" was given Against the Self-Efficacy of breastfeeding mothers is 59.8 with a p value of 0.000 ($p \leq 0.05$) which means that there is an effect of the use of the android-based application intervention "cakoASI.id" on the self-efficacy of breastfeeding mothers.

Table 3. Average difference in the effectiveness of the application of the android-based application "cakoASI.id" against the self-efficacy of breastfeeding mothers

	Self Efficacy	Different mean	P Value
Pretest	41	18.8	0.000
Posttest	59.8		

DISCUSSION

The results of this research are in line with Riyanti's (2018) research on the effect of breastfeeding education for postpartum mothers on breastfeeding self-efficacy. The results of the statistical test obtained a value of $p=0.000$, so it can be concluded that there is a significant difference between the breastfeeding self-efficacy score pre and post. It was found that the mother's self efficacy before was 41 and after was 59.8. Mete, et al (2010) showed that mothers who attend prenatal classes with their husbands have a positive effect on breastfeeding practices. 80.4% of mothers who attended prenatal classes gave breast milk with the correct technique. After feeding, their baby sleeps again, the mother feels high support from her partner and has high self-confidence to successfully breastfeed.

The results of this research strengthen the previous research, which is research from Dewi (2019), saying that the android-based application "Mama ASIX" can be used to improve the knowledge and attitude of mothers about exclusive breastfeeding better than leaflets. From this, it can be known that an android-based application that contains health information about exclusive breastfeeding is effective to be applied as a health education media (Dewi et.al., 2019).

Android-based application media can convey information messages verbally because the application media can contain a short description accompanied by colorful images so that the message is more easily accepted and understood by the target because respondents receive information directly through sight and hearing. Information given using simple sentences can be a stimulus for respondents to receive the message. One of the methods that can be used is the learning method with audiovisual media such as applications. The results of Zakaria's research (2017) concluded that education through audiovisual media can increase the knowledge of mothers who have babies about early breastfeeding initiation.

Elvina's research in 2020 shows that there is an impact of the android-based application "Busui Cerdas" on the knowledge of breastfeeding mothers ($P=0.00$). The results of this research explain that the intelligent busui android-based application media which is a product innovation from the results of this research can be used as an educational and counseling media to convey education about exclusive breastfeeding in the community. So that Android-based application media can indirectly reduce morbidity and mortality rates of babies. The goal is to be able to use this intelligent busui android-based application as much as possible as a learning medium about exclusive breastfeeding so that knowledge about exclusive breastfeeding is not only limited to knowing, understanding and responding. But also able to apply, analyze, implement, evaluate and be responsible for exclusive breastfeeding. Thus, indirectly, the intelligent busui android-based application motivates mothers to exclusively breastfeed their babies

Self-efficacy in breastfeeding mothers is very important. This is proven by Zakiah's research (2012) stating that mothers with high self-efficacy breastfeed longer than those with low self-efficacy and there is a positive correlation between self-efficacy on the first day postpartum and the duration of breastfeeding at 2 months postpartum. Postpartum mothers with high self-efficacy breastfeed longer than mothers with low self-efficacy. The average length of breastfeeding for mothers with low efficiency is 34.50 days, while the average for high efficiency is 49.27 days. Self-efficacy is closely related to mother's knowledge.

The results of this research are also in accordance with the theory put forward by Lunenburg (2011) that Breastfeeding self-efficacy can be influenced by 4 factors, namely performance accomplishment, vicarious experiences, verbal persuasion and physiological response (physiological responses). The results of this research also

prove the theory of Dennis (2010) which explains that there are 4 sources that influence breastfeeding self-efficacy, namely: 1) the experience of breastfeeding a baby directly; 2) indirect experience gained through observation or stories of other people who have successfully breastfed; 3) verbal persuasion from friends, family or health workers about lactation; and 4) physiological response in the form of absence of accompanying stress, fatigue or anxiety.

CONCLUSION

The conclusion of this research, among other characteristics, the majority of breastfeeding mothers are in the reproductive age, which is 25-35 years old, most of them have a background of secondary education and work. Most have parity >1 and have breastfeeding experience. There is a difference in the average self-efficacy of breastfeeding mothers before and after the application of the android-based application "cakoASI.id" intervention. The intervention of applying the android-based application "cakoASI.id" is effective in improving the self-efficacy of breastfeeding mothers in overcoming breastfeeding problems.

SUGGESTIONS

This program could be applied on vary population in further study.

ACKNOWLEDGMENT

Thank you to those who have helped in completing this research and preparing this manuscript. Thank you to the MERCUBAKTIJAYA Foundation and MERCUBAKTIJAYA University for supporting this research.

DECLARATION OF CONFLICTING INTEREST

This research does not involve any conflict of interest. Ethical approval for this research was obtained from the Community Health Center as well as consent from

participants who were willing to become research subjects. Furthermore, this research has received financial support from the MERCUBAKTIJAYA Foundation, and the Research and Community Service Institute of MERCUBAKTIJAYA University

FUNDING

This research was conducted using funds from the MERCUBAKTIJAYA Foundation

AUTHOR CONTRIBUTION

Rini Rahmayanti: Collecting data and writing the results.

Fitri Wahyuni: Supervisor and assist the finishing.

Hadigufri Triha: Supervisor and assist the finishing

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Rini Rahmayanti: none

Fitri Wahyuni : none

Hadigufri Triha: none

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Cite this article as: Rahmayanti, R., et al. (2025). Effect of Implementing the Android-Based Application “Cakoasi.Id” (Complementary Therapy Disc) on Mother's Self-Efficacy in Overcoming Breastfeeding Problems. *Nurse and Health: Jurnal Keperawatan*, 14 (1), 30-38. <https://doi.org/10.36720/nhjk.v14i1.692>