



Exclusive Breastfeeding Support Methods for Pregnant and Breastfeeding Mothers Using Technology

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Abstract

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BACKGROUND: The coverage of infants who are exclusively breastfed in North Sulawesi Province is still low. One of the causes is the lack of knowledge and lack of support from health workers as well as the closest family. In this digital era 4.0, there is a need to utilize technology as a medium for health education and assistance. The use of technology makes it easier for the facilitator to send videos and audio containing extension materials and can be accessed and conduct discussion activities anytime and anywhere by respondents.

AIM: This study aims to analyze the success of exclusive breastfeeding for breastfeeding mothers who are given support in the form of assistance through the use of technology.

METHODS: The research design used is quasi-experimental group control pre- and post-test. The intervention group was given support through assistance using technology. The control group was given education using medial leaflets.

RESULTS: The results of the study were tested using the Mann-Whitney test. The mean score of the intervention group was 0.87, greater than the mean score of the control group of 0.33. P value is $0.000 < 0.05$ so it can be concluded that the hypothesis is accepted.

CONCLUSION: The support provided through assistance to breastfeeding mothers by utilizing technology had an impact on the success of exclusive breastfeeding on 40 days of birth. It is recommended that service health providers pay attention to support for the success of exclusive breastfeeding, starting from pregnant women, during delivery, even during the period of breastfeeding.

Introduction

Exclusive breastfeeding is giving only breast milk without additional fluids [1]. The goodness of breast milk is priceless, because it contains colostrum which functions as an antibody and breast milk also contains certain enzymes that function as absorbent substances that will not interfere with other enzymes in the intestine [2].

The coverage of infants receiving exclusive breastfeeding in North Sulawesi was only 39.42%. The district/city with the highest coverage of breastfeeding is South Minahasa Regency and Tomohon City is in the sixth position [2].

One of the reasons why mothers do not give exclusive breastfeeding to their babies is the lack of knowledge and lack of support from health workers as well as their closest family. In this case, it is necessary to provide assistance to pregnant women through counseling and discussion forums so as to create a correct understanding and a genuine commitment to provide exclusive breastfeeding to their babies.

This is in accordance with several research results which found that the assistance provided could

provide knowledge and understanding to mothers about the importance of exclusive breastfeeding to increase immunity and intelligence [3], [4].

Assistance and support from families and health workers can increase the success of mothers in giving exclusive breastfeeding [5], [6].

In this digital era 4.0, there is a need to utilize technology as a medium for health counseling and assistance because information technology is one of the effective media in learning activities [7].

Several studies have shown that the use of technology in the health sector can improve health services and can change health behavior [8].

Herlina *et al.*'s research found that the use of telephone and SMS media was effective in increasing the understanding and insight of pregnant women during care and delivery [9].

A similar study by Tasya, *et al.* concluded that the use of SMS reminder media can increase husband's knowledge. This can make it easier for health workers to convey information without face-to-face interaction with the public [10].

Several previous studies have provided support and assistance in breastfeeding by meeting

directly with respondents and only providing support when the mother has started breastfeeding. In this study, we provide support to mothers from the 8th month of pregnancy to the end of the postpartum period by utilizing technology through the WA group.

Materials and Methods

This research is action research that is carried out intentionally to plan, implement, and then observe the impact of implementing these actions on the research subject.

The design research used is quasi-experimental group control post-test, where the research was conducted by intervening in the control group and the intervention group and then observing the dependent variable after the intervention.

The independent variable is support through the assistance of health workers, namely, mentoring activities carried out for pregnant women from the 8th month to the end of the postpartum period (8th month to 40th day of pregnancy after delivery) regarding exclusive breastfeeding. Assistance is carried out in several ways, namely, providing information about exclusive breastfeeding using videos and e-modules made by researchers, discussion/consultation with respondents through WA groups about problems that respondents experience during breastfeeding, as well as providing support to respondents to continue to breastfeed their babies.

The dependent variable is the success of exclusive breastfeeding for 1 month postpartum, that is, breastfeeding mothers are successful in providing exclusive breastfeeding (breastfed without additional fluids or additional food) during the puerperium (40 days after giving birth).

The population is all pregnant women entering the 8th month of North Tomohon Subdistrict (Kakaskasen Public Health Center) as many as 134 people. Furthermore, the number of samples was calculated using the Slovin formula so that the number of samples was 60. The sampling technique used was a cluster randomized trial with inclusion criteria of primigravida/multigravida mothers entering the 8th month and willing to participate in the mentoring program to completion. The exclusion criteria were primigravida/multigravida mothers who did not participate in all mentoring programs.

Randomization was conducted to determine respondents who entered the control group and respondents who entered the intervention group. Randomization was carried out based on kelurahan clusters in the Kakaskasen Tomohon Community Health Center Area. There are six sub-districts so that

five people are allocated to each sub-district in the control group and five people in the intervention group. After obtaining the allocation, randomization is carried out by compiling the names of the respondents and then making a name draw. Randomization was carried out by dropping the names and then the names that fell were recorded starting from number one to ten. Odd numbers were taken as the control group then even numbers were taken as the intervention group.

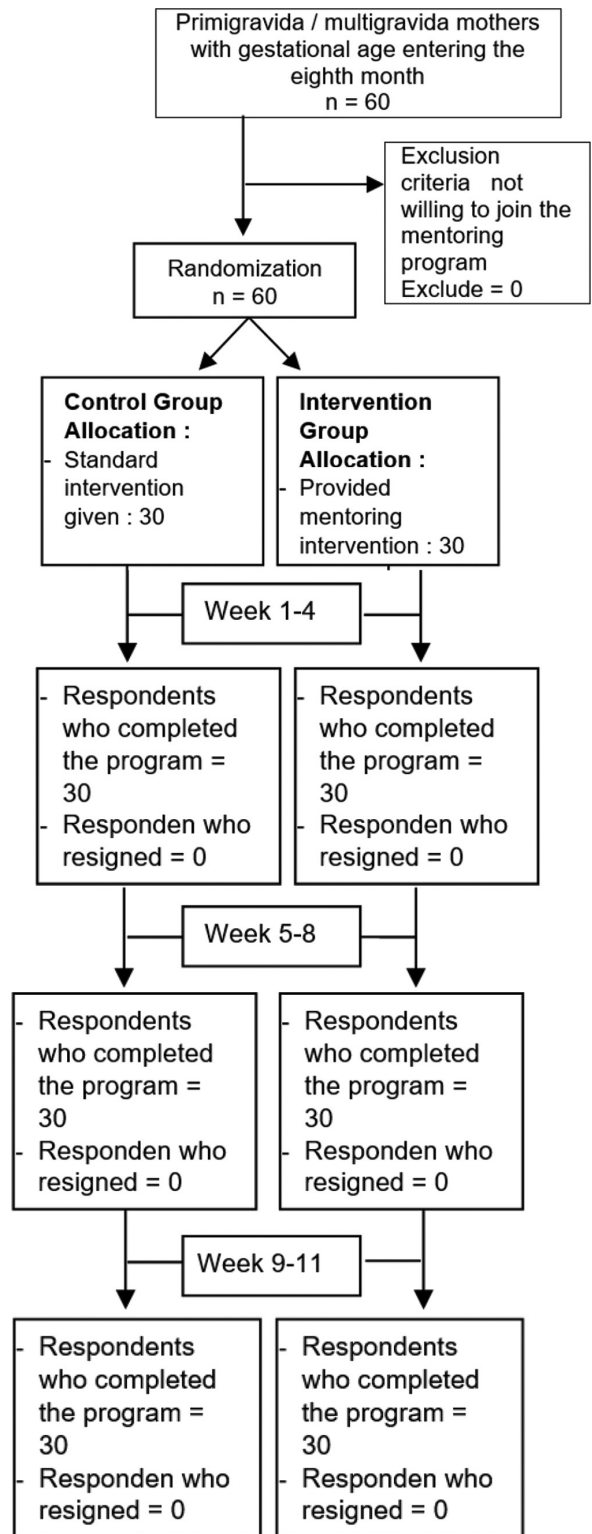


Figure 1: Flowchart of Respondents Selection

The instrument research used was an observation sheet containing questions about whether breastfeeding mothers gave exclusive breastfeeding without any additions during the 40 days of the baby's birth (after the puerperium). The WA group was used as a medium of communication with the intervention group respondents and also to discuss exclusive breastfeeding. The educational media used for the intervention group were the video "Exclusive Breastfeeding Can" and the "Exclusive Breastfeeding Can" E-Module which contained complete information about exclusive breastfeeding, starting from the definition, composition of breast milk, benefits, factors affecting breast milk production, and positions that true in breastfeeding, as well as myths in breastfeeding. Videos and E-Modules were prepared by the research team. The educational media used for the control group were a leaflet containing information about exclusive breastfeeding.

The intervention group was given support in the form of assistance to respondents by providing materials, E-Modules and videos sent through the WA group. In addition to providing material, there was also a question and answer session through the WA group about exclusive breastfeeding. The provision of information and discussion is carried out during pregnancy until the mother gives birth and until the postpartum period is over.

The control group was given education through lectures and leaflets. Discussion sessions were also conducted but only during face-to-face meetings with respondents. After the researcher intervened in the two groups, the respondent made observations about the success of exclusive breastfeeding using an observation sheet.

Questionnaires were given to respondents without including names, only using initials to ensure the confidentiality of research information. Access to information on research results is only owned by the researcher and is only used for research purposes.

Results

The results of the study of 30 respondents in the intervention group and 30 respondents in the control group are shown in Tables 1-3.

Table 1 shows that the most of the respondents are in the age group of 26–35 years (45%), the most of the respondents have primary and secondary education (81.67%), the most of the respondents are not working (56.67%), and some of the respondents are in their first pregnancy (50%), and some were in more than one pregnancy (50%).

Table 1: Distribution of group respondents based on age, education, occupation, and frequency of pregnancy in North Tomohon District, Tomohon City, 2021 (n = 60)

Characteristics of Respondents	The Intervention Group (n = 30)		The Control Group (n = 30)		Total (n = 60)	
	n	%	n	%	n	%
Age (years)						
<17	0	0	1	3.3	1	1.67
17–25	11	36.7	15	50	26	43.33
26–35	14	46.7	13	43.3	27	45
>35	5	16.7	1	3.3	6	10
Education						
Primary and secondary	25	83.3	24	80	49	81.67
Height	5	16.7	6	20	11	18.33
Employment						
Not working	16	53.3	18	60	34	56.67
Working	14	46.7	12	40	26	43.33
Frequency of Pregnancy						
Primigravida	14	46.7	16	53.3	30	50
Multigravida	16	53.3	14	46.7	30	50

The results of the statistical test in Table 2 show that the mean score for the success of exclusive breastfeeding in the intervention group was 0.87 (SD 0.346; 95% CI 0.74–1.00). As for the control group, the mean score for the success of exclusive breastfeeding was 0.33 (SD 0.479; 95% CI 0.15–0.51).

It can be concluded that the mean score for the success of exclusive breastfeeding in the intervention group is higher than the average score for the success of exclusive breastfeeding in the control group.

Table 2: Distribution of respondents based on success scores of exclusive breastfeeding in Tomohon Utara District, Tomohon City, October 2021, (n = 60)

Variables/Groups	N	mean	median	Standard Deviation	Min–max	CI 95% lower–upper
Success Score of Exclusive Breastfeeding						
Intervention group	30	0.87	1	0.346	0–1	0.74–1.00
Control group	30	0.33	0	0.479	0–1	0.15–0.51

Based on the output of the statistical test, it is known that p-value is 0.000 < 0.05, so it can be concluded that the hypothesis is accepted. There is a difference in the mean score of the intervention group and the control group, where the mean score of the intervention group is higher than the control group. Thus, it can be said that the support provided through assistance to breastfeeding mothers by utilizing technology has an impact on increasing the success of exclusive breastfeeding on 40 days of birth.

Table 3: Comparative analysis of the mean score success of exclusive breastfeeding in the control group and intervention group, North Tomohon District, Tomohon City, October 2021 (n = 60)

Variables/Groups	N	Mean	CI 95% lower–upper	Z	p value
Success Score Exclusive Breastfeeding					
Control group	30	0.33	0.15–0.51	-4.181	0.000*
Intervention group	30	0.87	0.74–0.87		

*Analysis Mann–Whitney Test.

Discussion

Based on the results of statistical tests, it was concluded that the average score for the success of

exclusive breastfeeding in the intervention group was higher than the control group. The statistical test results showed p value of $0.000 < 0.05$ so it can be assumed that providing support through assistance by utilizing technology has an impact on the success of giving exclusive breastfeeding.

Support activities in the form of mentoring carried out in this study are intended for pregnant women from the 8th month to the end of the postpartum period (8th month to 40th day of pregnancy after delivery). Assistance is carried out in several ways, namely, providing information about exclusive breastfeeding using videos and e-modules made by researchers, discussion/consultation with respondents through WhatsApp (WA) groups about problems that respondents experience during breastfeeding, as well as providing support to respondents to continue to breastfeed their babies.

The increasing ability of breastfeeding mothers to provide exclusive breastfeeding to their babies shows that the support provided through assistance by utilizing technology is effective in influencing the mother's decision to continue breastfeeding her baby. Some mothers feel that their breast milk does not seem to be enough, but with the provision of motivation and theory about milk production, breastfeeding mothers are enthusiastic and confident that they can exclusively breastfeed their babies.

Providing support to the group of mothers who are members of the WA group is effective in increasing the mother's self-confidence. Mothers do not feel alone because there are health workers and fellow breastfeeding mothers who are ready to help when mothers feel confused about breastfeeding. Mothers can share their breastfeeding experiences with each other, and with that experience mothers can find solutions to every obstacle, they experience while breastfeeding. This is in line with research from Eksadela *et al.* which found that providing support determines the continuity of a mother in breastfeeding her baby. Support from health workers can be in the form of advice or encouragement to mothers so that mothers remain committed to giving only breast milk to their babies [11].

Discussions in the WA group really helped increase the insight of breastfeeding mothers about breastfeeding. Each mother has a different experience and understanding of breastfeeding. Some of them still believe in the myths surrounding breastfeeding. By forming a community by utilizing technological advances, for example, through WA groups, it will make it easier for breastfeeding mothers to receive information that can dispel any misconceptions or answer any doubts from mothers about the success of breastfeeding.

Providing support by providing assistance through the WA group is very helpful for health workers in providing information related to breastfeeding. The

ease of sending and receiving messages is a very supportive factor in the success of the support provided. Through the WA group, it is easier for researchers to send YouTube research videos links and E-Module links so that breastfeeding mothers can watch videos and E-Modules at any time to increase their knowledge about exclusive breastfeeding.

One of the factors that support the success of exclusive breastfeeding in the intervention group is the provision of education using audio-visual media (videos and E-Modules). Research from Febriyani and Rizka found that the use of audio-visual media in providing health education had a significant effect on increasing mother's knowledge about exclusive breastfeeding. According to her, using media that is more attention-grabbing, the recipient of the message can be more easily convinced so that changes in knowledge, attitudes, and behavior occur more quickly [12].

In addition, a sense of empathy, concern, and quick response from health workers is needed so that any complaints or questions from breastfeeding mothers can be answered quickly. This affects the success of the support provided by health workers.

The results of this study can be a solution to the challenges of breastfeeding mothers which have previously been studied by Tampah-Naah who found that the challenges of exclusive breastfeeding can come from various sources, including the family environment, workplace, social environment, and mother's characteristics. Some of the causes of mother's failure to provide exclusive breastfeeding, among others are related to household chores that must be completed by the mother, work schedules, family influences, low milk production, and swollen breasts or sore nipples. The solution suggested by Tampah-Naah *et al.* in overcoming that this challenge is to provide support for breastfeeding mothers, both from husbands, and other family members, as well as support from various parties [13].

The results of this study are also in line with those stated by Anggreini. According to her, the implementation of mentoring and counseling on exclusive breastfeeding tutorials contributes to increase understanding knowledge and information that every mother who has a baby must know. A good understanding will create breastfeeding behavior, so the baby will get a good immune system and intelligence [3].

Sarimin *et al.* conducted research to identify the effectiveness of the Nursing Education Program (BEP) using aprons and Disaster Evacuation Baby Carrier in improving self-efficacy nursing mothers. The results of the study indicate that the support of health workers provided through BEP can increase the self-efficacy of breastfeeding mothers in disaster areas so as to increase the success of breastfeeding such as and can strengthen the capacity of mothers to cope with disaster-related conditions [14].

The importance of support for breastfeeding mothers was also stated by Cisco. The results of research conducted by Cisco show that support from the mother and health workers can significantly improve breastfeeding abilities. Nursing mothers who consult with others specifically about breastfeeding can influence the mother's decision to breastfeed. According to Cisco, the social support provided to breastfeeding mothers will affect the duration of breastfeeding [15].

The use of technology in this study is in line with statement Yani. According to him, technological advances are growing rapidly in today's digital world, and this progress has penetrated the health sector. One of the right solutions for solving public service problems is the use of technology. At least the use of technology can overcome geographical, time, and socio-economic problems. Several studies have shown that the use of technology in the health sector can improve health services and can change health behavior [8].

In this digital era 4.0, there is a need to utilize technology as a medium for health education and assistance.

The use of other technologies for exclusive breastfeeding support was used in research Yasya *et al.* on "The Effect of Facebook Social Media Use and Online Social Support on Breastfeeding Behavior." The results of the study found that the provision of online social support for exclusive breastfeeding through the Facebook group had a positive influence on breastfeeding behavior by mothers who joined the Facebook group [16].

Similar studies have been carried out by Bridges. The study leveraged technology to assess support involving members of three closed Facebook groups that were selected as cases of interest to study, based on the volume and nature of their posts. Members of these three groups then participated in in-depth online interviews and online semi-structured focus groups. The overarching theme identified was support, with four sub-themes describing the nature of online breastfeeding support through Facebook. The four sub-themes are community, complementary, immediate, and informational. It was found that online discussion sites, one of which was through social networks, were able to provide support for the breastfeeding mother community [17].

The limitation of this study is that the researcher only provides support through assistance for 40 days of birth considering the limitations of time and funds. Therefore, it is necessary to conduct further research to provide support to breastfeeding mothers from the third trimester of pregnancy to 6 months of birth, and also to increase the use of other technologies in providing support, for example, by creating applications to facilitate consultation between mothers and facilitators.

Conclusion

Providing support through assistance by utilizing technology has an impact on the success of exclusive breastfeeding for breastfeeding mothers during the puerperium.

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Research Ethics and Research Permit

This research has received research ethical clearance from the Ethics Commission of the Health Polytechnic, Ministry of Health of Manado, North Sulawesi, Indonesia, and has been granted research permit recommendation from the government of Tomohon City through the National Unity and Politics Agency.

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