

Implementation of an E-Module on Manual Exclusive Breastfeeding Practice and its Impact Among Mothers with Children Under 6 Months

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Abstract

Background

Batang Beruh Health Center, in Indonesia is one of the health service units located in the Dairi Regency area with a lot of mothers that have no experience in breastfeeding, especially if they do not have the interest to read pamphlets distributed at the health centers to learn the effectiveness of breastfeeding. That is why this study generally deems to investigate on the implementation of an e-module on the manual exclusive breastfeeding practice and its impact to mothers with children under 6 months old in the Indonesian setting.

Method

A quasi-experimental study was used. A-100 mothers were selected using inclusion and exclusion criteria divided in to experimental and control. Pre-test and post-test were survey questionnaires placed on the e-module. The posttest were taken after 30 days of seminar on how to use the e-module at the Batang Beruh Health Center.

Findings

The implementation of the e-module on manual exclusive breastfeeding among the experimental subjects had a more significant impact ($p < 0.05$) on both the Practical Support and Self-Esteem Support variables as compared to the Informational Support and Belongingness Support that had a lesser significant impact ($p > 0.05$).

Key words: Breastfeeding, e-module, maternal and child, breastmilk, quasi-experimental

Introduction

Exclusive breastfeeding according to the World Health Organization (WHO) is giving only breast milk without giving additional food and drink to babies from birth to 6 months old, except for medicines and vitamins (Sterken, 2020). Breastfeeding is still given to babies until they are 2 years old.

On average, 44% of infants aged 0-6 months worldwide were the only ones who received exclusive breastfeeding during the period (2015-2020) (Sterken, 2020). The WHO, (2023) target was 50% globally. In Indonesia, the coverage of babies receiving exclusive breastfeeding nationally is 66.1%, but the coverage of babies receiving exclusive breastfeeding in 2021 has decreased from the data for 2019, namely 67.74% (Kemenkes, RI, 2020).

According to the 2018 Riskesdas data, the proportion of exclusive breastfeeding is 37.3%, which is still far from the national target of 50%. In 2019 the Province of Bali recorded a coverage of exclusive breastfeeding of 73.8% and this achievement has exceeded the Minimum Service Standards target of 70%. Based on data from the Badung Regency Health Office in 2019 the coverage of exclusive breastfeeding has not reached the target, namely the achievement of 66.75% of the 70% target. The achievements of exclusive breastfeeding at the Puskesmas Abiansemal I in the last five years from 2016 to 2020 experienced fluctuating increases and decreases, namely in 2016 the achievement was 67.39%, in 2017 the achievement was 63.6%, in 2018 the achievement was 76.1%, in 2019 the achievement was 66.7% while in 2020 the achievement was 69.5%.

One of the problems that influence the mother not to give the manual exclusive breastfeeding to the baby, at their young age is that many of them have no experience in breastfeeding, especially if they are giving birth for the first time (Susanti et al., 2022). In addition, the mothers residing at villages – such as the Batang Beruh Village, Sidiangkat, Bintang, Bintang Mersada, Bintang Hulu, Kalang Simbara, and Peramnas Kalsim – have no interest on reading paper-based health promotion using pamphlets and flyers as it is sometimes complex to understand (Susanti et al., 2022). Furthermore, Bhawika et al., (2019) said in a research, one of the major issues facing Indonesia is illiteracy. The high rate of illiteracy is caused by the government's and the private sector's lack of concern for those who lack literacy. Because of this, the e-module will ensure an interactive interface format that allows moving graphic interface showing the techniques of breastfeeding which does not require too much reading comprehension skills (Hijrawati et al., 2021).

Based on this problem, the author is interested in implementing an e-module on exclusive breastfeeding for children under 6 months, specifically in the Batang Beruh Health Center Work Area, Sidikalang District, Dairi Regency in 2022. This study generally deems to investigate the implementation of an e-module on the manual exclusive breastfeeding practice and its impact to mothers with children under 6 months old.

Methods and Materials

This research is a two-group pretest-posttest design that evaluated the effectiveness of an e-module on manual exclusive breastfeeding.

Group 1 (Experimental group): This group consists of mothers with children under 6 months who will have access to the e-module on exclusive breastfeeding. These mothers will be provided with the e-module and will be encouraged to complete it at their own pace.

Group 2 (Control group): This group also consists of mothers with children under 6 months, but the mothers will not have access to the e-module during the study period. They will receive standard breastfeeding education and support available in their usual care settings.

Pretest: Before the intervention, both groups of mothers (experimental and non-experimental) will be assessed using a pretest to measure their baseline knowledge, attitudes, and practices related to exclusive breastfeeding. The pretest can be conducted through a questionnaire specifically designed for this purpose.

E-module intervention: The experimental group will be provided access to the e-module on exclusive breastfeeding. They will be encouraged to go through the module, engage with its content, and complete any interactive activities or assessments included in the module.

Standard care: The control group will continue receiving standard care and support related to breastfeeding from their healthcare providers or available community resources during the study period. They will not have access to the e-module.

Posttest: After a specified period, both groups will be assessed again using a posttest, similar to the pretest. The posttest will measure the knowledge, attitudes, and practices related to exclusive breastfeeding to determine if there were any changes or improvements.

Self-assessment and survey questionnaires: The e-module can incorporate self-administered questionnaires or interactive activities that allow mothers to provide manual exclusive breastfeeding among their children under 6 months old. These survey questionnaires can help mothers gauge their understanding and identify areas where they may need additional support or clarification.

Population and Sampling technique

The population of this research was collected from all mothers who have children under 6 months in Batang, Sidikalang District, Dairi Regency. The samples are mothers.

The sample in this study was obtained using the following formula (O'Neill, 2022):

$$n = \frac{Z^2_{1-\alpha/2} p_4}{d^k}$$

Calculation:

n = Sample size

d = desired absolute precision on both sides of the proportion

p = estimated proportion (prevalence) of the dependent variable in the population

q = 1-p

Z = Z statistic (eg 1.95 for $\alpha = 0.05$)

$$n = \frac{(1.96)^2 \times 0.07 \times 0.93}{(0.05)^2}$$

n = 99.9 (100 sample size) broken down into control (n64) and experimental (n36) groups. There were more control (n64) groups enrolled as compared to the experimental (n36).

A simple random sampling technique was used, conducting a serial number according to the number of respondents.

Randomly select participants: This study used a simple random selection method, such as a random number generator or a randomization table, to select participants for the control and experimental groups. Ensure that the selection process is unbiased and that each individual in the sampling frame has an equal chance of being selected.

Using a simple random sampling technique allowed researchers to randomly select participants from the entire population of interest in the village. This approach ensures that each member of the population has an equal chance of being included in the study, enhancing the study's representativeness and reducing selection bias.

Inclusion and exclusion criteria were then used as a guide for the sampling frame to ensure that the selected participants meet the necessary characteristics for the study. Inclusion criteria determined the specific factors that make individuals eligible for participation, while exclusion criteria identified any conditions or factors that would exclude them. These criteria were aligned with the research objectives and contribute to the study's validity.

Inclusion criteria:

- Mothers with babies below 6 months
- Ages 21 and above
- Physically and mentally healthy mothers
- Mothers who speak and understand written Bahasa Batak

Exclusion criteria:

- Terminally ill mothers
- Mothers who do not have babies below 6 months
- No foreigners

Once the sampling frame was generated, it was necessary to divide the enrolled participants into the experimental and control groups. This division was done in a randomized manner, ensuring that both groups were comparable in terms of key characteristics. Randomization techniques, such as simple randomization, stratified randomization, or block randomization, were employed to achieve this. Random assignment helped control for potential confounding factors and strengthens the internal validity of the study.

Study Instruments

The instrument in this study was an online self-administered questionnaire, and an e-module webpage for the

experimental group.

There were three sections for the online self-administered survey questionnaire. The questionnaire was adapted from the health journal in the public health office. The questionnaires were also revised in order to be appropriate for the study.

Section 1 was the demography which has 4 questions. Section 2 had categories of "practical support," "informational support," "self-esteem support," and "belongingness support".

a. Practical support

This is to measure practical training, 4 statements were given with answer choices yes = 1 and no = 0.

b. Informational Support

This is to measure informational support, 4 statements were given with answer choices yes = 1 and no = 0. So the highest score was 4 and the lowest score was 0.

c. Self-esteem support

This is to measure the self-esteem support of respondents, 10 statements were given with correct answer options = 1 and incorrect = 0.

d. Belongingness Support

This is to measure belongingness support, 15 statements were given with answer choices yes = 1 and no = 0.

The e-module as the interventional instrument for the experimental group was WordPress.com that acted as a teaching manual on exclusive breastfeeding. This instrument had particularly catered to Indonesian villagers who may have limited literacy skills but were receptive to visual content such as videos and graphic interchange formats (GIFs). The platform's user-friendly interface and multimedia capabilities made it ideal for delivering comprehensive breastfeeding guidance through engaging and visually appealing content, ensuring that even those with low literacy levels could easily comprehend and apply the information provided. Through a combination of videos demonstrating proper breastfeeding techniques, GIFs illustrating key steps, and visual aids presenting essential breastfeeding information, WordPress.com transformed the learning experience into an interactive and dynamic process that was not only informative but also enjoyable for the target audience. By leveraging WordPress.com's graphic-rich features, the e-module effectively empowered Indonesian breastfeeding mothers to embrace exclusive breastfeeding confidently, promoting the health and well-being of both mothers and their infants in the rural setting.

WordPress.com was designed using *HTML* and *JavaScript* codes to develop interactive and visually engaging content. The website could feature instructional videos in *HTML5* and *CSS3* format, allowed mothers to watch step-by-step breastfeeding techniques, while *jQuery* was employed to add interactive elements and animations, enhancing user experience. Additionally, *CSS* animations could be used to create dynamic effects, making the e-module more visually appealing. The website's responsive design, implemented using media queries in *CSS*, ensured that mothers could access the e-module on various devices, including smartphones and tablets, enabling convenient learning on-the-go. In order to accommodate low-literacy participants, the use of simple and intuitive navigation menus, created with *HTML* and *CSS*, facilitates easy access to different sections of the e-module. Furthermore, WordPress.com's user-friendly content management system allowed for seamless updates and additions to the e-module, ensuring it remained up-to-date with the latest breastfeeding guidelines and practices. By integrating various computer language codes, WordPress.com transformed into a powerful platform for developing an interactive and informative e-module that empowered Indonesian breastfeeding mother to embrace exclusive breastfeeding confidently.

In order to view the source code of this e-module website primarily the web address is typed in the World Wide Web browser: <https://cahayaocha.wordpress.com/>. After using a web browser, the following keyboard shortcuts were used:

1. Google Chrome, Microsoft Edge, and Opera:

Press Ctrl + U (Windows/Linux) or Command + Option + U (Mac) to open the page source in a new tab.

Press Ctrl + Shift + I (Windows/Linux) or Command + Option + I (Mac) to open the Developer Tools. Then, click on the "Sources" tab to view the page source and inspect individual elements.

2. Mozilla Firefox:

Press Ctrl + U (Windows/Linux) or Command + U (Mac) to open the page source in a new tab.

Press Ctrl + Shift + I (Windows/Linux) or Command + Option + I (Mac) to open the Developer Tools. Then, click on the "Inspector" tab to view the page source and inspect individual elements.

3. Microsoft Bing (deprecated):

Press F12 to open the Developer Tools. Then, click on the "HTML" tab to view the page source.

Data Collection Method

The pre-test and post-test survey questionnaire was used to collect data from both the experimental or control group.

In order to support and guide the mothers as the experimental group, in their breastfeeding journey, a 30-day seminar was designed to implement the e-module on manual exclusive breastfeeding practice. This seminar aims to equip experimental group of mothers with the necessary knowledge, skills, and support to successfully breastfeed their infants for the first six months of life using the e-module on the manual exclusive breastfeeding. Thus, the pre-test and posttest seminar was given to both control and experimental group to guide the mothers with the translation and explanation of the online self-administered survey questionnaire thoroughly.

Days 1-30 of the seminar focus on consolidation, reflection, and continued support. The experimental group of mothers as participants learned and solidified their breastfeeding knowledge and skills. They are encouraged to seek ongoing support from local communities and online platforms, as well as to continue educating themselves on breastfeeding-related topics. The seminar concludes with a reaffirmation of the benefits of exclusive breastfeeding and the participants' preparedness to embrace their breastfeeding journey beyond the seminar.

Data analysis

Central tendencies were used primarily to describe the percentage of the respondents. The parametric test is assumed to be more appropriate called the t-test to analyze the pretest and post-test (Statistics Solutions, 2020). The descriptive analysis will be answering the level of the respondents.

The pretest and posttest scores of both groups was compared to evaluate the impact of the e-module intervention on the experimental group. Statistical analysis, such as t-tests or analysis of variance (ANOVA), were used to determine if there are significant differences in the outcomes between the two group (Curtis et al., 2017)s.

a. Self-esteem support

To measure the self-esteem support of respondents, 10 statements were given with correct answer options = 1 and incorrect = 0. So the highest score was 10 and the lowest score was 0. High impact: 6-10 (>50%)

Low impact: 0-5 (<50%)

b. Belongingness Support

To measure belongingness support, 15 statements were given with answer choices yes = 1 and no = 0. So the highest score was 15 and the lowest score was 0.

High impact: 8-15 (>50%)

Low impact: 0-7 (<50%)

c. Practical support

To measure practical training, 4 statements were given with answer choices yes = 1 and no = 0. So the highest

score is 4 and the lowest score is 0.

High impact: 3-4 (>50%)

Low impact: 0-2 (<50%)

d. Informational Support

To measure informational support, 4 statements were given with answer choices yes = 1 and no = 0. So the highest score was 4 and the lowest score was 0.

High impact: 3-4 (>50%)

Low impact: 0-2 (<50%)

The pilot study was conducted among 10 participants whom were not included in the final full-scale research. The Cronbach’s alpha result is 0.7 from the self-administered survey questionnaire.

Ethical consideration

Lincoln University had primarily given the ethical clearance from the ethics committee of the Faculty of Health Sciences.

Permission to use the online tool for health promotion was acquired. The consent from the respondents was acquired online embedded in to one of the the e-module’s menu pages called the “contact page”.

This study also obtained permission for data collection through the Batang Beruh Health Center Work Area, Sidikalang District, Dairi Regency. The Batang Beath Community Health Center, Sidikalang District, Dairi Regency gave an ethical clearance with reference number XXXX dated: _____. Conducting a research study at Batang Beath Community Health Center, Sidikalang District, Dairi Regency, Indonesia, requires careful attention to various ethical considerations. Enumerated below are some of the key ethical considerations that were addressed during the research process:

Researchers guaranteed the confidentiality and anonymity of participants' personal information and data collected during the study. Ensuring data security and using anonymized identifiers were crucial to protect participants' privacy and maintained their trust in the research.

Participants was informed of their right to withdraw from the study at any time without facing any negative consequences. I respected this decision and discontinued data collection from withdrawn participants.

Conducting a study at Batang Beath Community Health Center, Sidikalang District, Dairi Regency, Indonesia, required strict adherence to ethical considerations. Obtaining ethical approval was a crucial step in ensuring that the research study was conducted ethically and responsibly, protecting the rights and welfare of the participants and upholding the highest standards of research integrity. By addressing these ethical considerations, the study contributed valuable insights to the field of exclusive breastfeeding and maternal-infant health while safeguarding the dignity and well-being of the individuals involved in the research.

Results and Findings

Mother's age while on manual exclusive breastfeeding

Mothers' age	Manual exclusive breastfeeding				Total	
	Control		Experimental			
	n	%	n	%	n	%
< 20 to > 35 yrs	30	68.2	14	31.8	44	100
20-35 years	34	60.7	22	39.3	56	100
Total	64	64.0	36	36.0	100	100

Table 1 above showed that of 44 people whose mothers aged <20 and >35 years, were 68.2% who did not give manual exclusive breastfeeding and 31.8% who gave manual exclusive breastfeeding. Among these mothers, there were two age categories mentioned, namely mothers aged below 20 years and mothers aged above 35 years.

Age Distribution: The study found that a portion of the mothers fell into the age category of <20 years (adolescent mothers) or >35 years (advanced maternal age). Specifically, 44 mothers were divided into these two age groups.

Division into Control and Experimental Groups: The mothers in the study were divided into two groups: control group and experimental group. The control group consisted of mothers who did not breastfeed, comprising 68.2% (n=30) of the total participants. On the other hand, the experimental group consisted of mothers who practiced breastfeeding, accounting for 31.8% (n=14) of the total participants. Overall, the demographic results suggest that the study included a sample of mothers spanning different age groups, with a division into control and experimental groups based on breastfeeding practices.

Meanwhile, Table 4.1 above showed 56 mothers aged 20-35 years, were 60.7% who did not give manual exclusive breastfeeding and 39.3% who gave manual exclusive breastfeeding. The majority of the participants did not practice breastfeeding in the control group, while the experimental group consisted of mothers who practiced breastfeeding.

Age Distribution: The study focused on mothers within the age range of 20 to 35 years. This age range represents women who are generally considered to be within the reproductive age group and may commonly experience motherhood during this period.

Division into Control and Experimental Groups: The mothers were divided into two groups: a control group and an experimental group. The control group consisted of mothers who did not practice breastfeeding, making up 60.7% (n=34) of the total participants. The experimental group comprised mothers who practiced breastfeeding and accounted for 39.3% (n=22) of the total participants.

Mother's employment status while on manual exclusive breastfeeding

Table 2 showed employment status of mothers while on manual exclusive breastfeeding for the year 2022

Work	Manual exclusive breastfeeding				Total	
	Control		Experimental			
	n	%	n	%	n	%
Working	41	73.0	15	26.8	56	100
Not Working	23	52.3	21	47.7	44	100
Total	64	64.0	36	36.0	100	100

Table 2 above showed that of 56 working mothers, 73.2% did not give manual exclusive breastfeeding while 26.8% gave manual exclusive breastfeeding.

Employment Status: The study specifically focused on mothers who were currently employed. This indicates that the participants were balancing their work responsibilities alongside their maternal roles in providing manual exclusive breastfeeding.

Division into Control and Experimental Groups: The mothers were divided into two groups: a control group and an experimental group. The control group consisted of mothers who did not practice breastfeeding, making up

73% (n=41) of the total participants. The experimental group consisted of mothers who practiced breastfeeding, accounting for 26.8% (n=15) of the total participants.

Based on the information provided, it can be inferred that the study targeted a specific population of employed mothers and divided them into control and experimental groups based on their breastfeeding practices.

It is worth noting that the sample may not be representative of all mothers, as it focused only on employed mothers. Therefore, the findings of the study may be more applicable to this specific subgroup of mothers rather than the entire population of breastfeeding mothers.

On the other hand, table 2 above also showed 44 mothers who were not working were 52.3% who did not give manual exclusive breastfeeding while 47.7% gave manual exclusive breastfeeding.

According to the information provided, the study targeted a specific population of unemployed mothers and divided them into control and experimental groups based on their breastfeeding practises.

Employment Situation: The study concentrated on mothers who were not currently employed. This indicates that the participants were most likely not working full-time during the study period.

Control and experimental groups were formed: The mothers were divided into two groups: a control group and an experimental group. The control group included 52.3% (n=23) of the total participants who were not breastfeeding mothers. The experimental group was made up of breastfeeding mothers, who made up 47.7% (n=21) of the total participants.

It is worth noting that the sample may not be representative of all mothers because it only included unemployed mothers. As a result, the study's findings may be more applicable to this specific subset of mothers rather than to the entire population of breastfeeding mothers.

Impact of the e-module on the manual exclusive breastfeeding on the control and experimental

Table 3 showed the control and experimental group on the impact of the e-module on the manual exclusive breastfeeding.

Exclusive breastfeeding for children under 6 months	Impact of the e-module on the manual exclusive breastfeeding				Total		P value
	Control		Experimental				
	n	%	n	%	n	%	
Low impact	49	90.7	5	9.3	54	100	<0.05
High impact	15	32.6	31	67.4	46	100	
Total	64	64.0	36	36.0	100	100	

Table 3 showed that both control and experimental subjects divided into low and high impact to the delivery of the e-module on the manual exclusive breastfeeding (p<0.05). A probability value of <0.05 is commonly used to determine statistical significance, indicating that the observed results are unlikely to occur by chance alone.

Of the 54 mothers, 90.7% who did not give manual exclusive breastfeeding and 9.3% who gave manual exclusive breastfeeding both had a low impact on the implemented e-module.

Impact on E-Module: The low impact category findings suggest that the mothers in the study had a low impact or limited effectiveness in utilizing the implemented e-module on manual exclusive breastfeeding. This could imply that the e-module did not significantly influence their breastfeeding practices or that the mothers faced challenges in implementing the knowledge gained from the e-module (p<0.05).

Division into Control and Experimental Groups: The mothers were divided into two groups: a control group and an experimental group. The control group consisted of mothers who did not practice breastfeeding, accounting for 90.7% (n=49) of the total participants. The experimental group consisted of mothers who practiced breastfeeding, making up 9.3% (n=5) of the total participants.

Probability: The given information mentions a probability of <0.05. This suggests that the probability of observing a low impact on the implemented e-module, as mentioned above, was statistically significant.

Meanwhile, from the 46 mothers, 32.6% did not give exclusive breastfeeding and 67.4% gave exclusive breastfeeding, both had a high impact on the implemented e-module.

Impact on E-Module: The findings suggest that the mothers in the study had a high impact or significant effectiveness in utilizing the implemented e-module on manual exclusive breastfeeding. This indicates that the e-module successfully influenced their breastfeeding practices, leading to positive outcomes.

Division into Control and Experimental Groups: The mothers were divided into two groups: a control group and an experimental group. The control group consisted of mothers who did not practice breastfeeding, accounting for 32.6% (n=15) of the total participants. The experimental group consisted of mothers who practiced breastfeeding, making up 67.4% (n=31) of the total participants.

Probability: The given information mentions a probability of <0.05. This suggests that the probability of observing a high impact on the implemented e-module, as mentioned above, was statistically significant.

Overall, based on the given information, it appears that the study evaluated the impact of an implemented e-module on manual exclusive breastfeeding and found a high impact among the participating mothers, with a majority in the experimental group practicing breastfeeding. The findings also suggest that the observed high impact on the e-module was statistically significant.

Practical support as an impact on the practice of manual exclusive breastfeeding

Table 4 Distribution of the frequency of Practical Support

No	Practical Support	Frequency	%
1	Low impact	60	60.0
2	High impact	40	40.0
Total		100	100.0

Table 4 showed that the majority of Practical Support has a low impact (60.0%, n60).

Practical Support Impact: The findings reveal that the majority of the mothers, specifically 60% (n=60), disagreed with the effectiveness of the practical support in facilitating manual exclusive breastfeeding.

Agreement and Disagreement: Within the sample of 100 mothers, 40% (n=40) agreed with the impact of practical support on the practice of manual exclusive breastfeeding. This suggests that a smaller proportion of mothers perceived practical support as effective in supporting their breastfeeding practice.

Table 5 showed that a total of 60 mothers had a low impact of Practical Support from the control group (88.3%, n53), also being higher than that of the experimental group (75%, n29). While a total of 40 mothers had a high impact of Practical Support from the control group (27.5%, n11), also being higher than that of the experimental group (11.7%, n7).

Table 5 Practical Support on the manual exclusive breastfeeding

Practical Support	Impact on manual exclusive breastfeeding				Total		P value
	Control		Experimental				
	n	%	n	%	n	%	
Low impact	53	88.3	29	72.5	60	100	<0.001
High impact	11	27.5	7	11.7	40	100	
Total	64	64.0	36	36.0	100	100	

The findings indicate that among the 60 mothers who participated in the study and determined a low impact of Practical Support, the control group had a higher percentage of mothers perceiving a low impact compared to the experimental group. Similarly, among the 40 mothers who reported a high impact of Practical Support, the control group had a higher percentage of mothers perceiving a high impact compared to the experimental group.

Low Impact of Practical Support:

Control Group: Among the 60 mothers who perceived a low impact of Practical Support, 88.3% (n=53) belonged to the control group.

Experimental Group: Among the 60 mothers who perceived a low impact of Practical Support, 75% (n=29) belonged to the experimental group.

High Impact of Practical Support:

Control Group: Among the 40 mothers who perceived a high impact of Practical Support, 27.5% (n=11) belonged to the control group.

Experimental Group: Among the 40 mothers who perceived a high impact of Practical Support, 11.7% (n=7) belonged to the experimental group.

Informational support as an impact on the practice of manual exclusive breastfeeding

Table 6 Distribution of the frequency of Information Support

No	Informational Support	Frequency	%
1	Low impact	62	62.0
2	High impact	38	38.0
Total		100	100.0

Table 6 showed that the majority of information support has a low impact (62.0%, n62).

Informational Support Impact: The study assessed the impact of informational support on the practice of manual exclusive breastfeeding. The findings reveal that the majority of the mothers, specifically 62% (n=62), disagreed with the effectiveness of the informational support in facilitating manual exclusive breastfeeding.

Agreement and Disagreement: Within the sample of 100 mothers, 38% (n=38) agreed with the impact of informational support on the practice of manual exclusive breastfeeding. This suggests that a smaller proportion of mothers perceived informational support as effective in supporting their breastfeeding practice.

Table 7 showed that a total of 62 mothers had a low impact of Informational Support from the control group (77.4%, n48), also being higher than that of the experimental group (22.6%, n14). While a total of 38 mothers had a high impact of Informational Support from the experimental group (57.9%, n22), also being higher than that of the control group (42.1%, n16).

Table 7 Informational Support on the manual exclusive breastfeeding

Informational Support	Impact on manual exclusive breastfeeding				Total		P value
	Control		Experimental				
	n	%	n	%	n	%	
Low impact	48	77.4	14	22.6	62	100	0.001
High impact	16	42.1	22	57.9	38	100	
Total	64	64.0	36	36.0	100	100	

The findings indicate that among the 62 mothers who participated in the study and determined a low impact of Informational Support, the control group had a higher percentage of mothers perceiving a low impact compared to the experimental group. Similarly, among the 38 mothers who reported a high impact of Informational Support, the experimental group had a higher percentage of mothers perceiving a high impact compared to the control group.

Low Impact of Informational Support:

Control Group: Among the 62 mothers who perceived a low impact of Informational Support, 77.4% (n=48) belonged to the control group.

Experimental Group: Among the 62 mothers who perceived a low impact of Informational Support, 22.6% (n=14) belonged to the experimental group.

High Impact of Informational Support:

Control Group: Among the 38 mothers who perceived a high impact of Informational Support, 42.1% (n=16) belonged to the control group.

Experimental Group: Among the 38 mothers who perceived a high impact of Informational Support, 57.9% (n=22) belonged to the experimental group.

Self-esteem support as an impact on the practice of manual exclusive breastfeeding

Table 8 Distribution of the frequency of Self-Esteem Support

No	Self-esteem Support	Frequency	%
1	Low impact	58	58.0
2	High impact	42	42.0
Total		100	100.0

Table 8 showed that the majority of self-esteem support has a low impact (58.0%, n58).

Self-Esteem Impact: The study assessed the impact of self-esteem support on the practice of manual exclusive breastfeeding. The findings reveal that the majority of the mothers, specifically 58% (n=58), disagreed with the effectiveness of the self-esteem support in facilitating manual exclusive breastfeeding.

Agreement and Disagreement: Within the sample of 100 mothers, 42% (n=42) agreed with the impact of self-esteem support on the practice of manual exclusive breastfeeding. This suggests that a smaller proportion of mothers perceived self-esteem support as effective in supporting their breastfeeding practice.

Table 9 showed that a total of 58 mothers had a low impact of Self-Esteem Support from the control group (79.3%, n46), also being higher than that of the experimental group (20.7%, n12). While a total of 42 mothers had a high impact of Self-Esteem Support from the experimental group (57.1%, n24), also being higher than that of the control group (42.7%, n18).

Table 9 Self-Esteem Support on the manual exclusive breastfeeding

Self-Esteem Support	Impact on manual exclusive breastfeeding				Total		P value
	Control		Experimental				
	n	%	n	%	n	%	
Low impact	46	79.3	12	20.7	58	100	<0.001
High impact	18	42.7	24	57.1	42	100	
Total	64	64.0	36	36.0	100	100	

The findings indicate that among the 62 mothers who participated in the study and determined a low impact of Self-Esteem Support, the control group had a higher percentage of mothers perceiving a low impact compared to the experimental group. Similarly, among the 42 mothers who reported a high impact of Self-Esteem Support, the experimental group had a higher percentage of mothers perceiving a high impact compared to the control group.

Low Impact of Self-Esteem Support:

Control Group: Among the 62 mothers who perceived a low impact of Self-Esteem Support, 79.3% (n=46) belonged to the control group.

Experimental Group: Among the 62 mothers who perceived a low impact of Self-Esteem Support, 20.7% (n=12) belonged to the experimental group.

High Impact of Self-Esteem Support:

Control Group: Among the 42 mothers who perceived a high impact of Self-Esteem Support, 42.7% (n=18) belonged to the control group.

Experimental Group: Among the 42 mothers who perceived a high impact of Self-Esteem Support, 57.1% (n=24) belonged to the experimental group.

Belongingness support as an impact on the practice of manual exclusive breastfeeding

Table 10 Distribution of the frequency of Belongingness Support

No	Belongingness Support	Frequency	%
1	Low impact	55	55.0
2	High impact	45	45.0
Total		100	100.0

Table 10 showed that the majority of belongingness support has a low impact (55.0%, n55).

Belongingness Support Impact: The study assessed the impact of belongingness support on the practice of manual exclusive breastfeeding. The findings reveal that the majority of the mothers, specifically 55% (n=55), disagreed with the effectiveness of the belongingness support in facilitating manual exclusive breastfeeding.

Agreement and Disagreement: Within the sample of 100 mothers, 45% (n=45) agreed with the impact of belongingness support on the practice of manual exclusive breastfeeding. This suggests that a smaller proportion of mothers perceived belongingness support as effective in supporting their breastfeeding practice.

Table 11 showed that a total of 55 mothers had a low impact of Belongingness Support from the control group (70.0%, n44), also being higher than that of the experimental group (30.0%, n11). While a total of 45 mothers had a high impact of Belongingness Support from the experimental group (55.6%, n25), also being higher than that of the control group (44.4%, n20).

Table 11 Belongingness Support on the manual exclusive breastfeeding

Belonging Support	Impact on manual exclusive breastfeeding				Total		P value
	Control		Experimental				
	n	%	n	%	n	%	
Low impact	44	70.0	11	30.0	55	100	<0.001
High impact	20	44.4	25	55.6	45	100	
Total	64	64.0	36	36.0	100	100	

The findings indicate that among the 55 mothers who participated in the study and determined a low impact of Belongingness Support, the control group had a higher percentage of mothers perceiving a low impact compared to the experimental group. Similarly, among the 45 mothers who reported a high impact of Belongingness Support, the experimental group had a higher percentage of mothers perceiving a high impact compared to the control group.

Low Impact of Belongingness Support:

Control Group: Among the 55 mothers who perceived a low impact of Belongingness Support, 70.0% (n=44) belonged to the control group.

Experimental Group: Among the 55 mothers who perceived a low impact of Belongingness Support, 30.0% (n=11) belonged to the experimental group.

High Impact of Belongingness Support:

Control Group: Among the 45 mothers who perceived a high impact of Belongingness Support, 44.4% (n=20) belonged to the control group.

Experimental Group: Among the 45 mothers who perceived a high impact of Belongingness Support, 55.6% (n=25) belonged to the experimental group.

Multivariate Analysis Results

Table 12 Experimental group on the manual exclusive breastfeeding

Variable	B	Sig.	OR	95% CI	
				Lower	Upper
Practical Support	3.540	0.004	8.467	3.073	36.562
Informational Support	-1.509	0.576	0.601	0.101	3.586

Self-esteem support	3.467	0.035	2.031	1.001	6.785
Belongingness Support	0.973	0.279	2.647	0.454	15.413

Table 12 showed that the experimental group had a more significant impact on the Practical Support and Self-Esteem Support ($p < 0.05$) and had a lesser significant impact on the Informational Support and Belongingness Support ($p > 0.05$).

It is important to note that the statistical significance of the impact is indicated by the significance levels ($p < 0.05$ and $p > 0.05$). The variables with a greater impact ($p < 0.05$) indicate a stronger relationship between the support provided and the practice of exclusive breastfeeding.

The findings suggest that the implementation of the e-module on manual exclusive breastfeeding had a more significant impact on mothers' practice when it came to Practical Support and Self-Esteem Support, compared to Informational Support and Belongingness Support.

Table 13 Control group on the manual exclusive breastfeeding

Variable	B	Sig.	OR	95% CI	
				Lower	Upper
Practical Support	3.508	0.004	8.386	3.089	40.888
Informational Support	-0.490	0.587	0.613	0.105	3.593
Self-Esteem Support	3.484	0.034	0.031	1.001	5.766
Belongingness Support	0.987	0.269	2.682	0.466	15.432

Table 13 showed that the control group had a more significant impact on the Practical Support and Self-Esteem Support ($p < 0.05$) and had a lesser significant impact on the Informational Support and Belongingness Support ($p > 0.05$).

Conclusion and recommendations

Based on the results of research on the effect of manual exclusive breastfeeding for children under 6 months in the Batang Beruh Health Center Work Area, Sidikalang District, Dairi Regency in 2022, the (1) "practical support", (2) "informational support", (3) "self-esteem support", and (4) "belongingness support" were all determined to give impact among breastfeeding mothers.

The implementation of the e-module on manual exclusive breastfeeding among the experimental subjects had a more significant impact ($p < 0.05$) on both the Practical Support and Self-Esteem Support variables as compared to the Informational Support and Belongingness Support that had a lesser significant impact ($p > 0.05$). Similarly, the implementation of the e-module on manual exclusive breastfeeding on the control group had a more significant impact ($p < 0.05$) on both the Practical Support and Self-Esteem Support variables as compared to both the Informational Support and Belongingness Support ($p > 0.05$).

The benefits of implementing an e-module on manual exclusive breastfeeding for mothers in Indonesia include accessibility, flexibility, visual and interactive learning, and standardised information (Hussein et al., 2019). However, it faces challenges such as limited access to technology, language and literacy barriers, and a lack of personalised support, technical issues, and cultural and contextual considerations (Alsolami et al., 2019). To maximise the effectiveness of e-modules, these flaws must be addressed and the intervention tailored to the specific needs of the target population (Chowdhury et al., 2021).

The study conducted in Batang Beath Community Health Center, Sidikalang District, Dairi Regency, Indonesia, sheds light on the potential of e-modules to positively impact breastfeeding support among Indonesian mothers. The recommendations presented in this essay emphasize the significance of e-modules in empowering mothers with practical, informational, self-esteem, and belongingness support. As a global community, we must

recognize the potential of technology-driven solutions to enhance breastfeeding practices and improve maternal and infant health outcomes worldwide.

By embracing the use of e-modules and investing in their development and dissemination, we can create a more supportive and inclusive environment for breastfeeding mothers. Governments, healthcare professionals, maternal and child health organizations, and community networks must collaborate to ensure that e-modules are widely accessible, culturally sensitive, and evidence-based. Together, we can work towards achieving the global goal of promoting exclusive breastfeeding as the cornerstone of early childhood nutrition and health.

For Dairi District Health Office

In order to be able to take policies to improve health promotion programs regarding exclusive breastfeeding for children under 6 months so that infant mothers can breastfeed children under 6 months and carry out monitoring at the maze so as not to promote formula milk (Sebastiani et al., 2019).

For the Public Health Study Program, Sari Mutiara University.

It is hoped that it can be a reference or input for the development of public health science to find out how the characteristics of mother and family support influence breastfeeding in infants children under 6 months.

For mothers of children under 6 months

It is recommended that mothers be more active in seeking information from print media such as health magazines, and related world wide web online facts about the benefits of exclusive breastfeeding so that they can increase their self-confidence and increase motivation in breastfeeding their babies by asking health workers about exclusive breastfeeding. in babies (Lee et al., 2022).

For Health Workers

It is recommended that health workers can improve health promotion efforts, especially regarding exclusive breastfeeding intensively through direct communication to the community by involving husbands, families, community leaders, nurses and midwives about the importance of breastfeeding. For example by using pictures, through media such as video compact disks or through leaflets on lactation management to make it easier for mothers to understand more deeply about the importance of breastfeeding and how to breastfeed properly (Galvão et al., 2022). Health workers should post pictures of proper breastfeeding procedures in health care settings.

For Further Researchers

It is suggested that other research designs can be used to reveal more about other factors that influence exclusive breastfeeding in children under 6 months. These e-modules can be disseminated through community centers, social media platforms, and local health clinics, fostering a supportive environment for breastfeeding mothers. Furthermore, communities can organize workshops and seminars to raise awareness about the benefits of exclusive breastfeeding and the availability of e-modules as a reliable source of support (Kamalifard et al., 2019).

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