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Digital Empowerment: Enhancing Maternal Knowledge and Attitudes Towards Breastfeeding Through "Sobat Busui" Magazine Intervention

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ABSTRACT Breast milk is best food babies. In this era information technology is developing very rapidly, this brings changes in society. It is possible that breastfeeding mothers also use Android-based media to access information on the internet about breastfeeding. The purpose to analyze the effect of using the digital magazine "Sobat Busui" on mothers' knowledge and attitudes about breastfeeding. Research method is quantitative research with a Quasi Experiment Design study with one group pre post test design. The independent variable is the use of digital magazines about breastfeeding, the dependent variable is the mother's knowledge and attitudes about breastfeeding. To analyze the effect using the Wilcoxon test. The results showed good knowledge (56.4%) before using the digital magazine "Sobat Busui" after using the digital magazine "Sobat Busui" showing a good increase in knowledge (70.9%) then for a positive attitude (50.9%) before using digital magazine "Sobat Busui" and after using digital magazine "Sobat Busui" showed an increase in positive attitude (67.3%). Wilcoxon test knowledge variable $p = 0.006 (< 0.05)$ and attitude variable $p = 0.000 (< 0.05)$. This means that there is an effect of using the digital magazine "Sobat Busui" on mothers' knowledge and attitudes. The conclusion is an increase in mothers' knowledge and attitudes after using the digital magazine "Sobat Busui". The suggestion is health workers are expected to use the digital magazine "Sobat Busui" as a support in providing health education about breastfeeding and for researchers to add cultural factor variables in future research. The benefit that can be taken from the results of this research, especially for breastfeeding mothers, is that by using the digital magazine Busui Friends, a mother can understand the importance of breastfeeding, not only by reading this magazine, it is also presented with interesting information in writing, videos and pictures and can be accessed online via the link, access and QR code and to make it easier for mothers to access it anywhere and anytime. For the wider community, this digital magazine can also be useful for increasing knowledge and taking the attitude that breastfeeding is very important.

INDEX TERMS Digital Magazine, Breastfeeding, Knowledge, Attitude.

I. INTRODUCTION

The fatty liquid secreted by the mother's mammary glands and used to feed babies commonly called breast milk. Exclusive breastfeeding means breastfeeding as soon as after delivery until the baby is six months old, given unscheduled and without additional food or drink, even if it's plain water [1].

Breast milk is seen as good nutrition for babies because it is sterile, inexpensive, has an appropriate nutritional composition, and contains antibodies that can prevent disease [2]

The Ministry of Health is targeting to increase the target exclusive breastfeeding to 80%. But in reality there is still a

shortage of exclusive breastfeeding in Indonesia, only 74.5% [3] Information on Indonesia's Health Profile shows the coverage of babies with exclusive breastfeeding of 68.74% in 2018 [4]. The exclusive breastfeeding rate of for infants aged 0-6 months in East Java was 61.0% in 2020, down from 68.2% in 2019. This decrease was due to the COVID-19 pandemic, but this coverage was above the target of the 2019 RPJMN 2020, which is 40% based on data [4]. In 2021 the districts/cities with the highest percentage of breastfeeding to babies <6 months are Bojonegoro (92.2%), Magetan (91.7%), and Pacitan (91.6%). Meanwhile, for the city of Surabaya it was 72.2%. From 31 districts in Surabaya according to the data [4] the highest six months old the percentage of exclusive breastfeeding in infants below were Asemrowo Health Center (100%), Pucangsewu (100%), and Mulyorejo (100%). Meanwhile, for the Sidotopo Wetan Health Center (48.69%). If seen from these data, the provision of information for mothers about breastfeeding is still not evenly distributed.

The goal of health education is to persuade or teach society in such a way that individuals are motivated to take actions that enhance and maintain their well-being [5] [6]. In this era, advances in information technology are developing rapidly, this brings changes in society. Almost all levels of Indonesian society own and use Android-based media to facilitate their daily activities. It is possible that breastfeeding mothers also use Android-based media to access information on the internet. According to research [7] exclusive breastfeeding the proportion of to mothers who get counseling through android media users is more than not [8].

Exclusive breastfeeding at the age of 0-6 months is considered very important because during this period babies are still sensitive and susceptible to various diseases [9] [10]. This makes mothers feel less confident in giving milk to their babies [11]. In addition, common factors that often trigger breastfeeding failure include 1) Lack of support from the family, 2) Working mothers, 3) Inappropriate breastfeeding techniques, 4) Difficulty in sucking the baby, 5) Not supporting the nipple, and 6) Myths circulating, such as the notion that diluted milk is not good for babies [5]. Ignorance and lack of understanding of mothers regarding the benefits of breastfeeding and breastfeeding are the main factors that cause mothers to be easily influenced and switch to formula milk [12] [13].

Today, there are 2 out of every 3 babies worldwide who do not receive exclusive breastfeeding for 6 months, and this situation has occurred for the last 20 years [14]. If the baby does not get exclusive breastfeeding, it will have a negative impact on the baby's health. The impact includes an increased risk of death from diarrhea as much as 3.94 times greater than babies who are exclusively breastfeeding [15] [16].

Government Regulation Number 33 of 2012 concerning Exclusive Breastfeeding is a policy regarding exclusive breastfeeding in Indonesia. One of the contents in the fourth part of information and education is about counseling, counseling and assistance regarding the importance of

breastfeeding. This is expected to change people's behavior regarding breastfeeding, that breastfeeding is the mother's right to breastfeed and the baby's right to be breastfeeding because breast milk is the best nutrition for babies [17].

Currently there are three existing applications including in research [18] who reported that the use of the Android application "Breastfeeding Fathers" proved effective in increasing the husband's understanding and contribution in exclusive breastfeeding (ASI fathers). Then in research [19] indicated the Sik-Asiek application's impact on understanding and attitudes toward exclusive breastfeeding was successful in raising understanding and attitudes toward exclusive breastfeeding. Next in research [20] that there is an influence on the importance of exclusive breastfeeding through the use of the SITENSIE application can influence the mothers' behavior in giving exclusive breastfeeding. Three studies using these applications are useful and can be used in education because they are based on Android' which makes users interested in opening them. This is also supported by [21] research entitled Breastfeeding asi-q android application for relax and smooth breastfeeding where the journal states that this application can provide benefits to society, especially breastfeeding mothers. Research conducted by [22] the Android Application "AYO ASI" Intervention in Increasing Breastfeeding Knowledge also states that the Android application "AYO ASI" can increase mothers' knowledge about breastfeeding. In line with existing research using different methods to improve mothers' knowledge and attitudes, the researchers developed a digital magazine-based product entitled "Sobat Busui".

Based on the description of the background above and supported by the benefits of breastfeeding, this study aims to conduct on effects of using the digital magazine sobat busui on breastfeeding. Mother's Knowledge and Attitudes About Breastfeeding." The contribution of this study is as follows:

1. This study evaluates the effect of using the digital magazine "Sobat Busui" on maternal knowledge and attitudes towards breastfeeding in the work area of the Sidotopo Wetan Health Center, Surabaya City, Indonesia1.
2. This study uses a quasi-experimental design with one group pre-post test design and applies the Wilcoxon Sign Rank Test to analyze the data from 55 respondents who had babies aged 0-6 months.
3. This study finds that there is a significant increase in maternal knowledge and positive attitudes towards breastfeeding after using the digital magazine "Sobat Busui", which contains various information, videos, and pictures about breastfeeding

II. METHOD

This research uses a type of quantitative research with a Quasi Experiment Design study. As for one group pre post test design, before being given action, the variables are observed or measured first through the initial test. After that, the

intervention was carried out' and then measurements or observations were carried out through the final test. This was done in the working area of Sidotopo Wetan Health Center in Surabaya. Starting in September 2022 until January 2023 according to the academic calendar. Then the data collection began in February-March 2023. The number of respondents was 120 mothers who had babies aged between 0-6 months in the working area of the Sidotopo Wetan Health Center, Surabaya City in January. Samples were taken from populations that met the inclusion and exclusion requirements which were calculated using the slovin formula and obtained 55 samples. The independent variable in this study was the use of digital breastfeeding magazines. Then, the dependent variable is breastfeeding knowledge and attitudes of breastfeeding mothers. The instruments used were univariate data analysis using the frequency distribution and bivariate using the Wilcoxon Sign Rank Test. Research ethics uses informed consent, anonymity, and confidentiality.

III. RESULT

This research was conducted at the Sidotopo Wetan Public Health Center, Surabaya City.

TABLE 1

Frequency Distribution of Respondent Characteristics Based on Age, Education, and Occupation in the Work Area of the Sidotopo Wetan Health Center, Surabaya City, February-March 2023

No	Characteristics of Respondents	Frequency	Percentage (%)
1	Age		
	<20 years	5	9,1
	20-35 years	42	76,4
	>35 years	8	14,5
	Total	55	100
2	Education		
	No school	0	0
	Elementary Education (SD)	20	36,4
	Secondary Education (SMP-SMA)	30	54,5
	Higher Education (Academy/PT)	5	9,1
	Total	55	100
3	Job status		
	Work	9	16,4
	Doesn't work	46	83,6
	Total	55	100

TABLE 2

Frequency Distribution of Respondents' Knowledge Before and After Using Digital Magazine "Sobat Busui" About Breastfeeding in the Work Area of the Sidotopo Wetan Health Center, Surabaya City in February-March 2023

Respondent Knowledge	Pre-test		Post test	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Good	31	56,4	39	70,9
Enough	23	41,8	15	27,3
Not enough	1	1,8	1	1,8
Total	55	100	55	100

Based on the results of the study in the TABLE 1 shows that of the 55 respondents who had babies aged 0-6 months, based on age, almost all 42 respondents (76.4%) were aged 20-35 years. Based on education, most of the 30 respondents (54.5%) had secondary education (junior high school). Based on employment status, almost all 46 respondents (83.6%) did not work. Based on TABLE 2 it shows that there was an increase in good knowledge before using the digital magazine "Sobat Busui" from 31 respondents (56.4%) to 39 respondents (70.9%) after using the digital magazine "Sobat Busui". This shows that there is an effect of using the digital magazine "Sobat Busui" on mothers' knowledge about breastfeeding.

TABLE 3

Frequency Distribution of Respondents' Attitudes Before and After Using Digital Magazine "Sobat Busui" About Breastfeeding in the Work Area of the Sidotopo Wetan Health Center, Surabaya City in February-March 2023.

Attitude of Respondents	Pre-test		Post test	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Positive	28	50,9	37	67,3
Negative	27	49,1	18	32,7
Total	55	100	55	100

Based on TABLE 3 it shows that there was an increase in positive attitudes before using the digital magazine "Sobat Busui" from 28 respondents (50.9%) to 37 respondents (67.3%) after using the digital magazine "Sobat Busui". This shows that there is an effect of using the digital magazine "Sobat Busui" on mothers' attitudes about breastfeeding.

TABLE 4

Results of the Analysis of the Effect of Using the Digital Magazine " Sobat Busui" on Knowledge About Breastfeeding in the Work Area of the Sidotopo Wetan Health Center, Surabaya City in February-March 2023.

Information	Amount	Average Rating	Number of ratings
Before and after knowledge (knowledge after <knowledge before)	10	13,20	132.00
The difference in positive values (knowledge after > prior knowledge)	23	18.65	429.00
The similarity of values (knowledge after =	22		

knowledge before)	Attitude before and after	-3.826*	0.000
Total			55

Based on TABLE 4 shows the results of the analysis that out of 55 respondents, there were 23 respondents who experienced increased knowledge about breastfeeding.

TABLE 5

Results of the Wilcoxon Sign Rank Test The Effect of Using the Digital Magazine " Sobat Busui " on Knowledge About Breastfeeding in the Work Area of the Sidotopo Wetan Health Center, Surabaya City in February-March 2023.

	Calculated value (Z)	Probability value (Asymp. Sig. (2-tailed))
Before and after knowledge	-2,479*	,006

Based on TABLE 5, the results of the Wilcoxon Sign Rank Test with a level of $\alpha = 0.05$ obtained a value of $p = 0.006 < \alpha (0.05)$ then H_0 is rejected and H_1 is accepted, meaning that there is an effect of using the digital magazine "Sobat Busui" on mother's knowledge about breastfeeding.

TABLE 6

Results of the Analysis of the Effect of Using the Digital Magazine " Sobat Busui " on Attitudes About Breastfeeding in the Work Area of the Sidotopo Wetan Health Center, Surabaya City in February-March 2023.

Information	Amount	Average Rating	Number of ratings
Attitude before and after Negative score difference (attitude after < attitude before)	7	17.00	119.00
Difference in positive values (attitude after > attitude before)	32	26,66	661.00
Value similarity (attitude after = attitude before)	16		
Total	55		

Based on TABLE 6 shows the results of the analysis that out of 55 respondents, there were 32 respondents who experienced an increase in attitudes about breastfeeding.

TABLE 7

Results of the Wilcoxon Sign Rank Test The Effect of Using the Digital Magazine " Sobat Busui " on Attitudes About Breastfeeding in the Work Area of the Sidotopo Wetan Health Center, Surabaya City in February-March 2023.

Calculated value (Z)	Probability value (Asymp. Sig. (2-tailed))

Based on TABLE 7, the results of the Wilcoxon Sign Rank Test with a significance level of $\alpha = 0.05$ obtained a value of $p = 0.000 < \alpha (0.05)$ then H_0 is rejected and H_1 is accepted, meaning that there is an effect of using the digital magazine "Sobat Busui" on mothers' attitudes about breastfeeding .

IV. DISCUSSION

A. THE EFFECT OF USING DIGITAL MAGAZINE "SOBAT BUSUI" ON RESPONDENTS' KNOWLEDGE OF BREASTFEEDING.

The results showed that there was an effect of using the digital magazine "Sobat Busui" on respondents' knowledge about breastfeeding. A mother's knowledge of the importance of breastfeeding influences breastfeeding success [23].

According to [24] Knowledge is the ability to know and understand an object through the senses such as sight, smell, hearing, feeling, and touch. Knowledge is the result of information obtained, mostly through the use of eyes and ears. According to Notoatmojo in the [25] [26] health promotion includes various means or efforts to convey messages or information from communicators through various types of media such as print media, electronic media (such as radio, television, computers, etc.), and external media the room. This aims to increase the target's knowledge so that they can behave more positively in terms of health. Health promotion media consists of three types, namely print media such as booklets, leaflets, flyers, flip charts, rubrics, posters, and photos. Then, electronic media such as television, radio, video compact discs, slides, and film strips. Apart from that, there are also outdoor media such as billboards, banners, exhibitions, banners, and television wide screens. In Adhiana's research (2016), only a few respondents were exposed to electronic media. After the intervention, knowledge increased, several factors contributed to this increase, such as internal factors such as education, work and age. Meanwhile, external factors include environment and culture. According to Nursalam the age group of 20-35 years is classified as a reproductive age where their intellectual abilities have not decreased.

"The digital magazine is an electronic version of part of the slide section because it is based on technology. This magazine no longer uses paper as the raw material for its articles like other magazines in general. On the other hand, according to Nurjanah in the [27] digital magazines exist in the form of digital files that can be accessed via electronic media such as computers, laptops, mobile phones, android, iPhone, iPad, and similar technologies". In the digital magazine "Sobat Busui" most of the sensing is through the eyes and ears. The magazine contains mostly video and audio, so it is interesting for mothers to get information. This is in line with Hayati's research (2017) where audiovisual media has an effect on feelings of pleasure and concentration so as to generate interest which influences the final result of knowledge. With

these characteristics, digital magazines are a very useful source of actual information. Therefore, researchers try to utilize digital magazines as the latest educational media by utilizing technological advances.

In this study, there were respondents who were less knowledgeable before and after using the digital magazine "Sobat Busui". Respondents who lack knowledge are different respondents where for less pre-test scores there has been an increase after using the digital magazine "Sobat Busui", while respondents to the post-test scores are respondents whose knowledge has decreased after using the digital magazine "Sobat Busui". These two respondents are from secondary educational backgrounds and unemployed employment status, but of different ages where for the first responders with increased knowledge are respondents with age > 35 years which is in accordance with According to Nursalam in the journal [28] [29] age can affect one's knowledge, getting old enough, the level of maturity and strength is more mature in thinking and work. "Meanwhile, respondents who have experienced a decrease in knowledge are respondents aged 20-35 years which are in accordance with Rostianah's research (2021) [23] based on the theory of 20-35 years of age who are biologically mentally not optimal with emotions that tend to be unstable, mentally immature tend to experience the shock to answer the question that was originally true to be wrong".

This research area has a strong culture so that social values accepted by society as a whole are spread through language. Culture itself can be seen from the level of beliefs, views, and habits of a person in playing the role of a nursing mother. Knowledge is also influenced by education where one way to acquire knowledge is through education. In this study, most of the mothers had secondary education (junior high school). The higher a person's educational level, the higher the knowledge he has, as shown by Listyo's research in the journal [30]. The mother's role in providing breast milk to the child is strongly influenced by her understanding and knowledge of exclusive breastfeeding, which is also influenced by the mother's level of education [31]. Lack of knowledge can affect mothers in providing breast milk for their babies. When viewed from employment status, in this study the majority of respondents who did not work had better knowledge because the focus was only on caring for their babies and meeting their needs. With information obtained from various media, mothers become more insightful.

The results of this study are in accordance with [32] [33] showing there is a relationship between information media and knowledge. The results of calculations using the Wilcoxon Sign Rank Test obtained a probability value less than alpha, then H_0 is rejected and H_1 is accepted, meaning that there is an effect of using the digital magazine "Sobat Busui" on mother's knowledge about breastfeeding. Supported by research from [34] states that the factor that influences knowledge is electronic media, in this case the digital magazine "Sobat Busui". The results indicate that the better a person's knowledge, the better his attitude. Supported by

experience and research showing that attitudes based on knowledge tend to be better than attitudes that are not based on knowledge. The findings from this study indicate that the wider knowledge of respondents about the use of the digital magazine "Sobat Busui" and the positive effects it has, the more inclined they are to be supportive of its use. Conversely, if the respondent's knowledge about the use of the digital magazine "Sobat Busui" is limited, then they tend to be negative or do not support its use.

B. THE EFFECT OF USING THE DIGITAL MAGAZINE "SOBAT BUSUI" ON RESPONDENTS' ATTITUDES ABOUT BREASTFEEDING

The results showed that using the "Sobat Busui" digital magazine had an effect on the respondents' attitude towards breastfeeding. Mother's attitude about the importance of breastfeeding will affect the success of the breastfeeding process.

According to Ermianti in [17] [10] mother's attitude towards breastfeeding is influenced by the response or reaction shown. This is in line with the findings of [35] which states that adequate knowledge about preventing Covid-19 will influence a person's positive actions towards it. A study conducted by Pradany and Margawati in [30] [36] shows that knowledge can influence a person's attitude. If knowledge about the practice of breastfeeding is lacking, negative attitudes tend to form towards breastfeeding. This finding is in line with Notoatmojo's which states that a person's response to certain stimuli involves opinions and emotions which are reflected in attitudes. Thus, attitude is very important for a mother in making choices. According to Ermianti in [17] [37] 'the mother's attitude towards breastfeeding is influenced by the reaction or reaction shown. When mom is ready, her attitude will be consistent.

This study used the digital magazine "Sobat Busui" to obtain information about breastfeeding, mothers showed a positive attitude followed by a willingness to breastfeed their babies. This attitude is then realized with real action. However, to realize a positive attitude into concrete action, support from related parties, such as health workers, family, or people closest to the mother is very important. Knowledge plays a very important role in shaping a person's attitude, both positive and negative attitudes. The cognitive aspect or knowledge is a very crucial domain in shaping one's behavior. When a person has a good attitude, he tends to approach, like, and expect a certain object. However, when a person has a negative attitude, he tends to stay away from, avoid, hate, or dislike certain objects. The majority of respondents showed a positive attitude towards the use of the digital magazine "Sobat Busui" which discusses breastfeeding. This is thought to be related to the level of knowledge of mothers. In this context, positive action is interpreted as a response that supports the use of the digital magazine "Sobat Busui", while negative action is interpreted as a response that does not support the use of the magazine. Positive action towards an object will influence a

person to act and be involved in action, for example' the use of the digital magazine "Sobat Busui" about breastfeeding. When mom is ready, her attitude will be consistent. This attitude is influenced by experiences and in turn influences behavior. The use of media, such as the digital magazine "Sobat Busui", can motivate a positive attitude. The perception of an object depends on beliefs and knowledge about the positive and negative impacts of the object. If someone has a positive or supportive perception of the use of the digital magazine "Sobat Busui", then it is likely that he will intend to use the magazine. However, if someone has a negative perception or does not support the use of the digital magazine "Sobat Busui", then he tends not to intend to use it. The perception of an object depends on beliefs and knowledge about the positive and negative impacts of the object. If someone has a positive or supportive perception of the use of the digital magazine "Sobat Busui", then it is likely that he will intend to use the magazine. However, if someone has a negative perception or does not support the use of the digital magazine "Sobat Busui", then he tends not to intend to use it. The perception of an object depends on beliefs and knowledge about the positive and negative impacts of the object. If someone has a positive or supportive perception of the use of the digital magazine "Sobat Busui", then it is likely that he will intend to use the magazine. However, if someone has a negative perception or does not support the use of the digital magazine "Sobat Busui", then he tends not to intend to use it. The perception of an object depends on beliefs and knowledge about the positive and negative impacts of the object. If someone has a positive or supportive perception of the use of the digital magazine "Sobat Busui", then it is likely that he will intend to use the magazine. However, if someone has a negative perception or does not support the use of the digital magazine "Sobat Busui", then he tends not to intend to use it.

Based on the results of the Wilcoxon Sign Rank Test, a probability value of less than alpha is obtained, which indicates that there is an influence on attitudes towards the use of the digital magazine "Sobat Busui" in providing breast milk. This study also shows that there are several mothers who have babies aged 0-6 months who have adequate knowledge and have a positive attitude towards the use of the digital magazine "Sobat Busui". This occurs because a person's attitude is influenced by a variety of factors, including age, education, and culture, in addition to information [38] [39]. This attitude is influenced by experience and influences behavior. The use of media, such as the digital magazine "Sobat Busui", can motivate a positive attitude.

The weakness in this research is that it takes quite a long time to create the digital magazine product 'Busui Friends', starting from looking for the latest and most trusted sources of information, video recording, editing and compiling it so that it looks attractive. Access also requires an internet connection because this digital magazine is used online. This research was also hampered in terms of data collection where several breastfeeding mothers could not access it independently using a QR code, so the researchers visited the target breastfeeding mothers one by one personally to help them access the digital magazine "Sobat Busui". A comparison with previous research is that there has never been a digital magazine with the topic of breastfeeding developed before. So, research on the digital magazine "Sobat Busui" is a new idea that discusses the importance of breastfeeding. Even though there were

several obstacles in this research, researchers received good feedback from the community. Several female cadres who also participated in the socialization of this digital magazine stated that the idea of creating a digital magazine specifically for breastfeeding mothers was an extraordinary idea. They hoped that there would always be interactive information like this digital magazine 'Busui Friends'. Based on a simple interview with one breastfeeding mother, it was stated that it would be good for all mothers to access this magazine so they know the benefits of breastfeeding their babies, not just the target respondents. So, researchers can state that there is an impact received by society from this research.

V. CONCLUSION

The aim of this study was to analyze the effect of using the digital magazine "Sobat Busui" on mothers' knowledge and attitudes about breastfeeding¹². The digital magazine is an electronic media that contains information, videos, and pictures about the benefits and practices of breastfeeding. The study used a quasi-experimental design with one group pre-posttest design involving 55 mothers who had babies aged 0-6 months in the working area of the Sidotopo Wetan Health Center, Surabaya City⁴. The data were collected using questionnaires and analyzed using the Wilcoxon Sign Rank Test. The findings showed that there was a significant increase in mothers' knowledge and attitudes about breastfeeding after using the digital magazine "Sobat Busui". The mean score of knowledge increased from 13.20 to 18.65 ($p = 0.006$), and the mean score of attitudes increased from 17.00 to 26.66 ($p = 0.000$). This indicates that the digital magazine "Sobat Busui" is an effective media to enhance maternal knowledge and attitudes towards breastfeeding. The implications of this study are that health workers can use the digital magazine "Sobat Busui" as a support in providing health education about breastfeeding to mothers. The digital magazine "Sobat Busui" can also be useful for increasing the awareness and motivation of mothers to practice exclusive breastfeeding for their babies. For future research, it is suggested to add cultural factor variables and to compare the digital magazine "Sobat Busui" with other media or interventions in promoting breastfeeding.

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