Participation in Pregnancy Class Increases Knowledge of Lactation Preparation among Pregnant Women

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ABSTRACT
One factor contributing to the low rate of exclusive breastfeeding is the limited knowledge pregnant women have regarding lactation preparation. Pregnancy class is designed to serve as a learning medium to enhance their understanding of this topic. This research was conducted to analyzing the effectiveness of pregnancy class in inreaces knowledge of lactation preparation among pregnant women. The study employed an observational analytic method with a prospective approach and involved 30 pregnant women, who were selected using a multistage cluster random sampling technique from a total population of 78. Data were collected using a questionnaire on lactation preparation that had been adapted from prior studies. Descriptive analysis revealed that all participants who regularly attended the classes demonstrated good knowledge levels, while among those who were less active, two respondents (13%) still had only moderate knowledge. Data were analyzed using the Mann-Whitney test produced a p-value of 0.021 (<0.05), indicating a significant relationship between participation in pregnancy class and pregnant women's knowledge of lactation preparation in Jabung District, Malang Regency. In conclusion, pregnancy class is effective in increases knowledge of lactation preparation among pregnant women.
Keywords: pregnancy class; knowledge level; lactation preparation

INTRODUCTION
Breast milk serves as the primary source of nutrition for infants aged 0–6 months and is essential for supporting their optimal growth and development [1]. To ensure these developmental outcomes, breastfeeding during this period should be exclusive. Exclusive breastfeeding refers to feeding infants solely with breast milk, without any additional food or beverages, except for medicines and vitamins, for six consecutive months [2]. Despite the well-documented benefits of breast milk, the rate of exclusive breastfeeding remains below the expected target.

Data from the Global Breastfeeding Collective (2022–2023) reported that the global prevalence of exclusive breastfeeding for the first six months was 48%. While this figure is approaching the World Health Assembly's 2025 goal of 50%, it still falls short of the Global Breastfeeding Collective's minimum target of 70% by 2030 [3,4]. The latest data in 2024 issued by the Maternal Perinatal Death Notification (MPDN) released from the Ministry of Health in 2024 noted that exclusive breastfeeding coverage in the first quarter was 61.63% and the second quarter was 65.3%. This figure is still far from the target set by the Ministry of Health in 2024, which is 80%. In Malang Regency itself, data on exclusive breastfeeding rates from 2021 to 2023 show significant fluctuations, with rates of 44.43%, 30.77%, and 35.45%, respectively. Specific data on exclusive breastfeeding coverage in Jabung Subdistrict is not yet available, and the latest data reflecting the current situation remains limited. However, based on data at the Malang Regency level, which still shows fluctuating rates and has not yet met the national target, it is suspected that similar conditions exist at the subdistrict level, including in Jabung Subdistrict. This indicates that there are still issues in the practice of exclusive breastfeeding that require attention, one of which relates to pregnant women's knowledge regarding lactation preparation.

The unmet target of exclusive breastfeeding coverage needs to be a common concern because breastfeeding has a major impact on the incidence of stunting [5]. In 2020, Indonesia was ranked 115th out of 151 countries in terms of stunting prevalence based on JME data from UNICEF and the World Bank. Based on the WHO classification, Indonesia is still included in the high stunting prevalence group [6]. This problem also has an impact on postpartum mothers because if breast milk cannot be given exclusively, it will cause problems related to breastfeeding, one of which is breast dam [7]. This is evidenced in 2015, postpartum mothers who experienced breast dams were 77.231 or 37,12% [8].

Some of these impacts can be caused by several factors, one of which is not optimal lactation preparation during pregnancy. This non-optimality can also be caused by the lack of lactation preparation [9]. Lactation preparation is everything that is done to achieve successful breastfeeding [2,10]. If the material can be provided intensively during pregnancy, the mother will have better knowledge with the hope that in the postpartum period she can achieve successful breastfeeding. This can be facilitated by pregnant women's class activities because they are included in government programs that are carried out routinely, systematically and continuously. This solution is expected to provide opportunities for pregnant women to gain a deeper understanding of aspects related to breastfeeding [11].

This aligns with the findings of Supeni et al. (2022), who indicated that providing pregnant women with classes covering IMD and exclusive breastfeeding topics can enhance their knowledge as well as foster positive changes in their attitudes and behaviors [12]. Comparable findings were reported by Wardani et al. (2024), who stated that mothers' knowledge of lactation management is closely linked to the success of exclusive breastfeeding, with higher levels of knowledge increasing the likelihood of successful exclusive breastfeeding [13]. No prior studies have examined the impact of pregnant women's classes on their knowledge levels regarding lactation preparation. In this case, the material of lactation preparation is very complex starting from preparation during pregnancy to postpartum so this is what distinguishes this study from previous studies.

This study is novel in that it focuses on lactation preparation as a more specific aspect compared to previous studies, which generally only addressed general knowledge about breastfeeding. Furthermore, this study also assessed the effectiveness of prenatal classes based on participation levels (active and inactive). The research's innovation lies in this analytical approach and its contribution in providing contextual data in data-limited areas, thus providing a basis for developing maternal health programs. Building on this background, the researcher aims to analyzing the effectiveness of pregnancy class in inreaces knowledge of lactation preparation among pregnant women.

METHODS
This research was conducted from August 2024 to June 2025 in the Jabung District, Malang Regency. This study employed an observational analytic design with a prospective approach. This study employed an observational analytic design because the researcher did not manipulate or intervene in the variables but only observed the existing conditions and analyzed the relationship between participation in pregnancy class and

pregnant women's knowledge of lactation preparation. The prospective approach was applied, meaning that data were collected forward in time by following participants over a certain period. Pregnant women were observed based on their participation in pregnancy class, categorized as active and inactive, and their knowledge levels were assessed after participating in the class. This design allows the researcher analyzing the effectiveness of pregnancy class in inreaces knowledge of lactation preparation among pregnant women without directly influencing the participants' behavior.

The study population consisted of all pregnant women residing in the Jabung District, Malang Regency, in 2024. Using the Slovin formula, a sample of 30 pregnant women with a gestational age of more than 12 weeks was obtained and divided equally into two groups: 15 participants in the active group and 15 in the inactive group. The inclusion criteria defined active participants as those who attended maternity classes three or more consecutive times during the study, while inactive participants attended one session or fewer. A multistage cluster random sampling method was applied, with clusters determined based on the areas most active and inactive in conducting maternity classes and the highest number of pregnant women, resulting in the selection of two villages.

The independent variable in this study was the pregnancy class, a study group of pregnant women over 12 weeks of gestation who received information on lactation preparation provided by health workers in 3 consecutive meetings. The categorization was that mothers were considered active in attending pregnancy class if they had attended pregnancy class ≥ 3 times, while mothers were considered inactive in attending pregnancy class if they had attended pregnancy classes ≤ 1 time. The dependent variable in this study was the level of knowledge of pregnant women about lactation preparation, namely the pregnant women's understanding of the material on lactation preparation after attending the pregnancy class, which was measured by the levels of knowledge, understanding, and application. With the categorization of knowledge as good if the correct answer is 76%-100%, enough if the correct answer is 56%-76%, and less if the correct answer is <56%.

Participants who actively attended the classes for three consecutive months and those who were less active were evaluated based on the knowledge they gained from the class materials. This evaluation was intended to determine whether participation in maternity classes significantly influenced their understanding of lactation preparation. The classes were conducted once a month with specific topics scheduled for each session. In the first meeting, the materials given were physical and psychological changes in pregnant women, danger signs of pregnancy, understanding of breast milk and the benefits of breast milk. In the second meeting, the materials covered breast care, labor preparation and Early Breastfeeding Initiation (EBI). In the third meeting, the materials covered correct breastfeeding techniques, ASIP management, prevention of postpartum complications and newborn care at home.

The data were collected as primary data using a lactation preparation questionnaire adapted from Molan & Indriani (2020), which had previously been tested for validity and reliability [14]. In addition, secondary data from attendance registers were utilized to determine the number of participants in the pregnant women's class activities. The collected data were then analyzed descriptively to illustrate class participation levels and the knowledge of pregnant women regarding lactation preparation, as well as to examine influencing factors such as age, education, occupation, and prior experience. After that, the data will be analyzed analytically using ratio data to determine the maximum value, minimum value, mean and standard deviation, so as to analyze the effect of the (independent) variable of pregnant women's classes on the (dependent) variable of pregnant women's knowledge level about lactation preparation. The statistical test used is non-parametric, namely the mann whitney test which has previously been determined based on normality and homogeneity tests. The results will be interpreted using statistical analysis with the help of IBM SPSS Statistics Version 25 software.

RESULTS

The results of this study are presented in the form of a frequency distribution table consisting of general data and specific data. General data contains characteristics of respondents, including age, education, occupation, and parity, while specific data contains the knowledge of respondents who actively participate in pregnancy classes and those who do not actively participate in pregnancy classes, as well as data analysis results that describe the effect of pregnancy classes on the level of knowledge of pregnant women about lactation preparation in the Jabung District, Malang Regency.

Table 1. Distribution of demographic characteristics of pregnant women in Jabung District, Malang Regency in 2025

Demographic characteristics	Category	Active group		Inctive group	
		Frequency	Percentage	Frequency	Percentage
Age	< 20 years old	0	0	0	0
	20 – 35 years old	13	87	15	100
	> 35 years old	2	13	0	0
Education	D3/S1/S2/S3	0	0	0	0
	Senior high school	8	53	6	40
	Junior high school	3	20	1	7
	Elementary school	4	27	8	53
Occupation	Employed	2	13	1	7
	Unemployed	13	87	14	93
Parity	No children yet	5	33	4	27
	1	7	47	7	46
	2	3	20	4	27
	≥ 3	0	0	0	0

Based on Table 1 above, the results show that in terms of the characteristics of pregnant women who actively attended antenatal classes, most were in the 20-35 age group (healthy reproduction), namely 13 pregnant women pregnant women (87%), while in the group that did not actively participate in the pregnancy classes, all were from the 20–35 age group (healthy reproduction), namely 15 pregnant women (100%). In terms of educational background, most pregnant women who actively participated in prenatal classes were high school graduates, numbering 8 pregnant women (53%), while most pregnant women who did not actively participate in prenatal classes were elementary school graduates, numbering 8 pregnant women (53%). In terms of the characteristics of pregnant women who actively participated in prenatal classes, most were not working, namely 13 pregnant women (87%), while in the group that did not actively participate in prenatal classes, most were not working,

namely 14 pregnant women (93%). In terms of the characteristics of pregnant women who actively participated in prenatal classes, most had one child, namely 7 pregnant women (47%), while in the group that did not actively participate in prenatal classes, most had one child, namely 7 pregnant women (47%).

Table 2. Statistical analysis of the participation in pregnancy class increases knowledge of lactation preparation among pregnant women in Jabung District Malang Regency in 2025

Maternity class participation	Knowledge level about lactation preparation						Knowledge score of pregnant women				
	Good		Enough		Less		Minimum	Maximum	Mean	Standard deviation	p-value
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage					
Active	15	100	0	0	0	0	80	100	90	5.669	0.021
Inactive	13	87	2	13	0	0	60	95	82	10.328	

Based on Table 2, the results show that all pregnant women in the active maternity class group demonstrated good knowledge, whereas 13% of those in the inactive group were still classified as having a moderate level of knowledge. The knowledge score obtained based on the maximum and minimum values in the active group ranged between 80-100, while in the inactive group it ranged between 60-95. Pregnant women who actively attended pregnancy classes had a higher average knowledge score (90) compared to those who were inactive (82). The standard deviation value in the active group was 5.669, which means that the knowledge scores of active pregnant women tended to be close to the average (90) where with a small SD value it can be concluded that the level of knowledge was quite uniform, namely that most pregnant women had scores in the range of 90 ± 5.669 (i.e. between 84.3 and 95.7). The standard deviation value in the inactive group was 10.328, which means that the knowledge scores of inactive pregnant women were more spread out from the average (82) where a large SD value indicates high variation, namely that some were very knowledgeable and some were very less knowledgeable. Most pregnant women have scores in the range of 82 ± 10.328 (i.e. between 71.7 and 92.3), although in fact the minimum is 60 and the maximum is 95.

In this study, the statistical test used was a non-parametric Mann-Whitney test with the help of IBM SPSS-25. The *p-value* was 0.021, which was smaller than the α value of 0.05, meaning H_0 was rejected. This indicates that there is a significant difference between the knowledge levels of pregnant women who actively and inactively attend pregnancy classes.

DISCUSSION

The lack of fulfillment of information needs during antenatal check-ups encourages most pregnant women to seek information from various other sources, such as television and social media. However, the information found is often contradictory or frightening, leading to concerns about its accuracy [15]. A systematic review also revealed that the quality of health information available online is problematic, as its accuracy cannot always be assured [16]. Therefore, it is important that maternity classes are held during pregnancy because maternity classes are conducted by knowledgeable resource persons so that they can be used as a means of accessing reliable information [17]. The pregnant mothers' class, also known as the antenatal class, is a learning group for expectant mothers with gestational ages ranging from 4 to 36 weeks, accommodating a maximum of 10 participants. It serves as a face-to-face health education forum designed to enhance mothers' knowledge and skills related to pregnancy, childbirth, postpartum care, and newborn care, utilizing the MCH (Maternal and Child Health) handbook as a practical guide [18].

One of the materials that can be taught and no less important to be given in pregnant women's classes is about lactation preparation. This is in accordance with research by Paz-Pascual et al. (2019) which states that breastfeeding and the potential problems it causes seem to parents to be the most important points that should be discussed during pregnant women's classes [19]. Therefore, pregnant women are expected to gain a more comprehensive understanding of the preparations needed before breastfeeding, which in turn can foster a positive attitude toward exclusive breastfeeding and ultimately improve its coverage rates.

The findings indicated a significant difference in the knowledge levels of pregnant women who were active in attending maternity classes compared to those who were inactive, leading to the conclusion that these classes have a meaningful impact on mothers' knowledge regarding lactation preparation. This demonstrates the benefits gained by pregnant women who actively participate in such classes. These results are consistent with the study by Avignon et al. (2023), which highlighted that maternity classes provide a valuable platform for exchanging knowledge and connecting with other expectant parents. By meeting and exchanging experiences, this can increase peer support and increase sources of knowledge other than competent sources. In addition, sharing problems with other parents can also normalize maternal concerns, especially in primiparous pregnant women [20].

Pregnant women's classes foster not only interaction between facilitators and participants but also among the participants themselves, allowing for the exchange of diverse experiences. Knowledge can be enriched through peer experiences, particularly from those who have undergone previous pregnancies. Learning from such experiences can enhance understanding. This aligns with the study's findings, which revealed that most pregnant women in both the active and inactive groups had prior pregnancy experience. This statement is supported by the theory put forward by Matt Duncan in his book entitled "Oxford Studies in Philosophy of Mind Volume 1" in his fifth chapter entitled "Experience is Knowledge" which suggests that in this view, experience is knowledge. So, experience is very important for some knowledge (knowledge that only some subjects have), one of which is an experience that if the subject does not have the experience, then they will not have the knowledge either. In this case, it is knowledge about lactation preparation [21].

The material presented also does not only come from the facilitator, but also involves participants through discussion. Discussion is one way to gain knowledge. This is supported by the theory of Notoatmodjo (2010) which states that discussion participation is one of the effective ways to increase one's knowledge. The activities and interactions carried out in pregnant women's classes provide opportunities for participants to acquire additional information, particularly regarding lactation preparation. According to Notoatmodjo (2007), information is one of the key factors influencing an individual's knowledge; the more information a person receives, the greater their knowledge will be. Besides being obtained through maternity classes, information can also be gained during formal education, making education another factor that affects knowledge levels. The study found that most pregnant women in the active group had completed senior high school, whereas the majority in the inactive group had only reached elementary school. This difference is believed to contribute to variations in knowledge levels, as reflected in the higher average knowledge scores of the active group. These findings are consistent with research by Gomes da Silva et al. (2021), which showed that educational attainment

is a strong positive predictor of health knowledge outcomes the higher the education level, the greater the knowledge possessed. Education influences the learning process, and individuals with higher education levels generally find it easier to absorb information [22].

Moreover, mothers can also access information through social media. The study revealed that the majority of pregnant women, in both the active and inactive groups, were unemployed, giving them ample free time to seek knowledge from alternative sources such as social media. These findings align with Sivakumar et al. (2023), who noted that knowledge is developed through content creation and that new content is frequently generated and shared on social networking platforms. Similar research conducted in Indonesia also demonstrated that social interactions within social media groups contribute to knowledge formation. This evidence highlights that individuals can utilize platforms like blogs and Wikipedia as resources for learning [23].

The ease with which a person receives information can also be influenced by age. Based on the results of the study, it was found that most of the pregnant women, both in the active and inactive groups, were of healthy reproductive age. These results are relevant to research conducted by Mamba (2017) which states that age describes the physical, psychological and social maturity that affects the teaching and learning process. This reinforces the statement that age is one of the factors that influence the capture of information which ultimately affects the increase in one's knowledge, including in this study is knowledge about lactation preparation [24].

In pregnancy classes, the health education provided is more comprehensive, sustainable and provided by competent resource persons, such as midwives, general practitioners, specialists and local community leaders. Even abroad, it is not uncommon for the resource persons to come from physiotherapists, nutritionists, nurses and other competent resource persons [18]. Therefore, health education delivered through pregnant women's classes is considered more effective than education provided individually through consultations, Communication, Information and Education (IEC) sessions, or one-on-one counseling during pregnancy checkups or posyandu activities. Individual approaches have several limitations, such as providing information only related to existing health problems, offering knowledge on a one-time basis, and lacking cross-sectoral or cross-program monitoring and follow-up [12].

From the explanation above, it can be inferred that pregnant women who actively participate in maternity classes gain more information compared to those who are less active. This is supported by the study findings, which revealed that the average knowledge scores were higher among participants who regularly attended the classes than those who did not. These results are consistent with the research of Supeni et al. (2022), which indicated that maternity classes covering Early Breastfeeding Initiation (EBI) and exclusive breastfeeding materials not only enhance mothers' knowledge but also influence their attitudes and behaviors [12]. Apart from pregnant women's classes, several other factors such as age, education, occupation, and experience can also influence knowledge levels. Even so, maternity classes remain a crucial medium for pregnant women, particularly first-time mothers, to acquire information. For this reason, in recent years, the government has implemented these classes as a program emphasizing in-depth discussions of the MCH book material through face-to-face sessions, group discussions, and experience sharing between pregnant women, their spouses or families, and health professionals [25].

This study has its own uniqueness that distinguishes it from previous studies because it succeeded in proving that pregnant women's classes can be an effective medium in providing health education on lactation preparation considering that the material is relatively complex and cannot be delivered optimally in just one meeting. Based on this finding, it is expected that pregnant women who have not attended pregnancy classes can be encouraged to actively participate in order to gain comprehensive knowledge, especially related to lactation preparation. Since the results of this study have a good level of representativeness, these findings may serve as a reference for policymakers in formulating and improving health programs, particularly those targeting maternal and child health.

However, this study has limitations in the instrument used, which only provides two answer options (correct and incorrect). This allows respondents to answer correctly by chance at 50%, which in turn can affect the validity of measuring knowledge levels and can make it difficult to distinguish actual knowledge levels between respondents. Therefore, the results of this study need to be interpreted by considering these limitations, and can be a reference in improving instrument design in future studies.

CONCLUSION

Based on the results, this study concludes that pregnancy class is effective in increases knowledge of lactation preparation among pregnant women.

Ethical consideration, competing interest and source of funding

-The ethical approval: This study had obtained ethical approval from the Health Research Ethics Commission of the Poltekkes Kemenkes Malang with Number DP.04.03/F.XXI.30/00368/2025.
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