Prediction of individual characteristics and lactation facilities in the workplace on the sustainability of working mother’s exclusive breastfeeding

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Abstract

Background: Working mothers are more likely than stay-at-home mothers to discontinue breastfeeding earlier. The province of Banten has a low rate of exclusive breastfeeding coverage. The government issued several regulations to address the challenges and barriers in the workplace to continue exclusive breastfeeding. The research aims to predict the influence of individual characteristics and lactation facilities in the workplace on the sustainability of exclusive breastfeeding for working mothers.

Method: This study uses a quantitative approach with a cross-sectional design. 65 survey respondents were given online questionnaires. Mothers who work in the Banten area, in specific, are currently or have previously breastfed their babies aged 6-24 months. The study was carried out in July 2022. The quantitative analysis used logistic regression to identify factors that significantly relate to the sustainability of exclusive breastfeeding.

Result: The study’s findings indicate that the knowledge variable of working mothers has a significant effect, with a p-value of 0.040 and an Odds Ratio of 5.564, implying that working mothers with poor knowledge are 5.5 times more likely to discontinue exclusive breastfeeding than working mothers with good knowledge.

Conclusion: Develop an intervention model in the workplace that provides education about dairy milk management.

Keywords: Individual characteristic; lactation support; lactation facilities; working mother; workplace

Abstrak


Hasil: Hasil penelitian memprediksi bahwa variabel pengetahuan ibu bekerja memiliki pengaruh signifikan dengan nilai p=0.040 dan Odds Ratio sebesar = 5,564, artinya bahwa ibu bekerja yang
memiliki pengetahuan buruk akan meningkatkan risiko untuk tidak melanjutkan pemberian ASI eksklusif 5,5 kali lebih besar dibandingkan ibu bekerja yang memiliki pengetahuan baik. 

**Kesimpulan:** Pengembangan model intervensi dalam bentuk pemberian edukasi tentang manajemen ASI perah perlu dilakukan di tempat kerja.

**Kata Kunci:** karakteristik individu, dukungan laktasi, fasilitas laktasi, ibu bekerja, tempat kerja

**INTRODUCTION**

It is simple to find women working in various industries in today's industrial era. According to data from the Indonesian Ministry of Manpower, there are 50,699,158 female workers registered in various formal and informal industrial sectors in Indonesia, and more than 31 million female workers out of a total of all Indonesian workers are of childbearing age (aged 15-45 years). Banten has 2,205,417 people of working age in the female gender category (1). Every type of work has occupational safety and health risks, especially for women. The reproductive health of female workers requires special consideration. Working mothers are vulnerable in terms of their dual roles biologically to breastfeed or express breast milk (ASI) and economically to support the family's economic needs.

According to WHO, exclusive breastfeeding begins when the baby is born and continues until the baby is six months old. However, data show that in Indonesia, only one in every two babies under six months is exclusively breastfed (2). According to regional data, Banten Province has a lower exclusive breastfeeding coverage rate than the national coverage rate of around 55.9% (3). Furthermore, on-site breastfeeding support benefits the company/workplace by reducing absenteeism, increasing productivity, increasing female worker retention, reducing cost claims for both treatment and other things that are the impact of not offering exclusive breastfeeding, and improving the company's image. As a result, the activity of expressing breast milk at work is critical for working mothers to maintain exclusive breastfeeding (4).

Several previous studies have found that occupational factors are the most common barriers, particularly for working mothers who are breastfeeding (5). Working hours are typically 8 hours per day, with additional factors such as low levels of education, demands to meet economic needs and a lack of lactation facilities in the workplace (6).

According to Basrowi's research, only 21% of companies or offices in Indonesia provide adequate lactation support facilities. This facility includes a room for breastfeeding and other infrastructure (7). However, breastfeeding rooms are mentioned in Minister of Health Regulation No. 15 of 2013 regarding procedures for providing special facilities for breastfeeding and expressing breast milk in the workplace (8).

The form global breastfeeding support program includes not only lactation rooms for breastfeeding or expressing breast milk but also peer support, the provision of pumps for expressing breast milk, and flexible working hours, all of which have been shown to have a positive impact on the form of increasing exclusive breastfeeding duration and the emergence of self-confidence while breastfeeding (9). Furthermore, job satisfaction among female workers who breastfeed will rise (10).

As a result, the company's productivity is strongly influenced by the health of its female workers, particularly regarding the sustainability of exclusive breastfeeding. As a result, this study aims to predict the impact of individual characteristics and lactation facilities in the workplace on the sustainability of exclusive breastfeeding for working mothers.

**METHOD**

This study used a quantitative approach with a cross-sectional design. The researcher identified two variables to be measured: dependent and independent variables. These
variables were measured simultaneously at the time determined by the researcher. This study was carried out in the province of Banten from March to July 2022. With a design to capture respondents who work as working mothers in various formal workplaces such as industry and offices.

There are two different proportions based on the sample calculation using the hypothesis test formula, with the proportion value based on previous research (11). On the proportion of working mothers who provided exclusive breastfeeding in the absence of leadership support (P1 = 0.86) and the proportion of working mothers who provided exclusive breastfeeding with leadership support (P2 = 0.47) (12). As a result, the sample size for this study was 44 people. In anticipation of respondents resigning, the number of samples was increased from the initial number, so 62 respondents were required in this study. The completed questionnaire was returned to the researcher, and 65 respondents completed it. In total, 65 people participated in this study. The sampling technique used was accidental sampling via online questionnaire distribution. The statistical test used multivariate analysis with a logistic regression type to predict the risk factors most influencing exclusive breastfeeding. This research protocol was submitted for ethical clearance to the Research Ethics Commission of the Faculty of Health Sciences, Syarif Hidayatullah State Islamic University, Jakarta, and was approved by letter number: Un.01/F.10/KP.01.1/KE.SP/06.08.017/2022.

RESULT

The research data was collected by distributing questionnaires to 65 respondents online in the Banten area, and the data were analyzed using univariate, bivariate, and multivariate methods, obtaining the following results:

| Table 1. Distribution of Individual Characteristics based on the Mother's Age, Knowledge, Attitude, and Working Period |
| Variable                      | Mean | Median | SD    | Min – Max | 95% CI  |
| Mother's Age                  | 33.74| 33     | 5.856 | 24 - 45   | 32.29 – 35.19 |
| Knowledge                     | 5.12 | 5      | 1.038 | 2 - 6     | 4.87 – 5.38   |
| Attitude                      | 19.54| 21     | 6.347 | 5 - 25    | 17.97 – 21.11 |
| Years of service             | 8.218| 7      | 7.016 | 1 - 18    | 6.480 – 9.957 |

According to Table 1, the average age of working mothers who are breastfeeding respondents is 33.74 years, with a 5.86-year variation. The youngest mother is 24 years old, while the oldest is 45. According to the study, 95% of working mothers believe that the average age of breastfeeding mothers is between 32.29 and 35.19 years.

The average level of knowledge among mothers is 5, with a variation of 1.038. The lowest score in the knowledge variable is two, and the highest is six. According to the analysis findings, 95% of respondents believed that the average score of a mother's knowledge ranged from 4.87 to 5.38.

The average level of a mother's attitude is 21, with a range of 6.347. The lowest score in the attitude variable is five, and the highest is 25. According to the analysis results, 95% believe that the average score of the mother's attitude is between 17.97 and 21.11.

Mothers work an average of seven years, ranging from 7,016 to seven years. The tenure variable has a minimum of one year and 18 years. According to the analysis findings, 95% of respondents believed that the average tenure score ranged from 6.48 to 9.96.

While below is a description of the individual characteristics of respondents for variables with a categorical measuring scale, displayed in the form of tables and narrative sentences for the interpretation of the data contained in table 2.
According to Table 2, the majority of mothers with higher education have a D1 education level, with as many as 61 people (93.8%) having a D1 education level; the family structure consists of nuclear families (father, mother, and children) in one place of residence, with as many as 38 people (58.5%) having a D1 education level. The distance from home to work is greater than 5 kilometers for 43 people (66.2%).

According to Table 3, the variable of lactation policies in the workplace, the majority of respondents' answers from 37 (56.9%) who have a lactation policy at work, the variable of lactation rooms in the workplace, the majority of respondents' answers from 36 (55.4%) who have a lactation policy at work. In terms of leadership support, the majority of respondents, as many as 58 (89.2%), received it at work.

All variables had p-values greater than 0.25 in the bivariate results, with only the attitude variable having a p-value less than 0.25, which was 0.176. However, the
Furthermore, the multivariate stage was completed, and all variables that passed the bivariate selection stage were analyzed together in several models, as shown in Table 5 below:

### Table 5. Multivariate Prediction Modelling

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>0.113</td>
<td>0.172</td>
<td>0.122</td>
<td>0.087</td>
<td>0.117</td>
<td>0.113</td>
<td></td>
</tr>
<tr>
<td>Policy on Lactation</td>
<td>0.079</td>
<td>0.241</td>
<td>0.337</td>
<td>0.416</td>
<td>0.253</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Lactation Room</td>
<td>0.070</td>
<td>-</td>
<td>0.335</td>
<td>0.220</td>
<td>0.328</td>
<td>0.229</td>
<td>0.070</td>
</tr>
<tr>
<td>Knowledge</td>
<td>0.061</td>
<td>0.050</td>
<td>0.050</td>
<td>0.040</td>
<td>0.228</td>
<td>0.040</td>
<td>0.061</td>
</tr>
<tr>
<td>Attitude</td>
<td>0.139</td>
<td>0.105</td>
<td>0.112</td>
<td>-</td>
<td>0.075</td>
<td>0.110</td>
<td>0.139</td>
</tr>
<tr>
<td>Working Status</td>
<td>0.119</td>
<td>0.107</td>
<td>0.116</td>
<td>0.082</td>
<td>-</td>
<td>0.097</td>
<td>0.119</td>
</tr>
</tbody>
</table>

According to Table 5, the lactation policy variable has the highest p-value (0.253), so it was removed first from the model. There is a more than 10% change in OR in the variables of the lactation room, knowledge, and work status. The policy variable then acts as a confounding variable in the relationship between lactation room, knowledge, and work status and the occurrence of exclusive breastfeeding continuity. As a result, the policy variables had to be re-entered into the multivariate modeling.

The lactation room variable was removed in the second modeling stage (p=0.070). In the variables of education, policy, knowledge, and work status, the OR changes by more than 10%. The lactation room variable then serves as a confounding variable in the relationship between education, policy, knowledge, and work status variables and the prevalence of exclusive breastfeeding. As a result, the lactation space variable was re-included in the multivariate modeling.

The third stage involves removing the variable level of education from the model (p = 0.172). There is a more than 10% change in OR in the variables of the lactation room, knowledge, and work status. On the other hand, the education variable is a confounding variable in the relationship between lactation room, knowledge, and work status and the incidence of exclusive breastfeeding continuity. As a result, the education variable was re-added to the multivariate modeling.

The attitude variable (p=0.112) is removed from the model in the fourth stage. Assume there is a 10% change in the OR of the policy variable and work status. In that case, the attitude variable muddles the relationship between policy and work status variables and the prevalence of continued exclusive breastfeeding. As a result, the attitude variable was re-included in the multivariate modeling.

The work status variable is removed in the fifth stage (p = 0.082). Assume there is a 10% change in the OR of the policy variable and work status. In that case, the attitude variable muddles the relationship between policy and work status variables and the prevalence of continued exclusive breastfeeding. As a result, the attitude variable was re-included in the multivariate modeling.

As a result, the final modeling is shown in Table 6 below:

### Table 6. Results of Logistics Regression Modeling

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>P-value</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
</table>

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Knowledge was found to be significantly related to the sustainability of exclusive breastfeeding for working mothers in the Banten area, with a p-value = 0.040, which was controlled for by the confounding variables education, lactation policy, lactation room, attitude, and work status in the final modeling. The former model is feasible because it corresponds to the model's meaning as determined by the omnibus test value (p = 0.043). The independent variable in the model can explain the continuation of exclusive breastfeeding by 26.5% based on Nagelkerke's R square value = 0.265. The knowledge variable had the greatest impact on the continuation of exclusive breastfeeding in working mothers, with OR = 5.564 (95% CI OR: 1.084 - 28.546), implying that working mothers with poor knowledge were 5.5 times more likely to discontinue exclusive breastfeeding than working mothers with good knowledge.

DISCUSSION

In previous research Hirani et al. (2013) developed a concept of a lactation support model in the workplace that there are individual components or individual characteristics and components of support at work that will affect the sustainability of exclusive breastfeeding in working mothers. Individual characteristics such as breastfeeding knowledge, easy access to facilities and human resources that play a role, and awareness of workplace policies are required. In contrast, workplace components include the company's leadership or management, coworkers, and available facilities (13).

According to the findings of this study, knowledge is the only variable that significantly influences the sustainability of exclusive breastfeeding for working mothers in the Banten area. The risk is 5.5 times higher in mothers unaware of the benefits of discontinuing exclusive breastfeeding.

According to a study conducted on office and industrial workers in Indonesia, knowledge has a sixfold risk for continuing exclusive breastfeeding (14). According to a literature review conducted by Nanda and Khoefiyah (2022), knowledge is one-factor influencing breastfeeding (15). Various information obtained by breastfeeding mothers from social media, mass media, and electronic media will influence a mother's level of knowledge. Working mothers will find it challenging to provide breast milk to their children due to a lack of knowledge. Lactation management, how to express breast milk adequately while at work, how to store it, and how to give well-expressed breast milk to their children are all skills that working mothers must learn.

The knowledge in question is also related to knowledge of workplace lactation policies. It is recommended that workers begin learning about lactation when they are pregnant. Workplace education is essential to increase knowledge for working mothers who will and are breastfeeding, the availability of lactation classes, and the dissemination of information through posters, pamphlets, banners, books, lactation counselors, and other means (4).

Lactation knowledge should also be adjusted to current conditions, such as understanding lactation activities during a pandemic, which differs from conditions before the pandemic (16). Respondents with good knowledge did not all continue to breastfeed exclusively in this study; this may be related to education level because
education is directly proportional to the respondents' knowledge.

Other individual characteristic variables such as education level, attitude, and work status were also found to be confounding variables between knowledge and the continuation of exclusive breastfeeding in these workers in this study. This confounding variable plays a vital role because it can affect the level of knowledge while also affecting the sustainability of exclusive breastfeeding. As with the working status variable, the presence of this variable increases the duration of exclusive breastfeeding by 11 times, and the education level variable increases the duration of exclusive breastfeeding by nearly six times.

In line with the research by Agustia et al. (2019), the attitude variable has no relationship with the continuation of exclusive breastfeeding. Her previous breastfeeding experience primarily determines a woman's positive attitude. So that when she has to breastfeed in public places or at work, it doesn't become an obstacle for her to continue breastfeeding or expressing breast milk anywhere (17). This study found that the respondents generally had a positive average score, and on average, the respondents also gave exclusive breastfeeding. But in terms of relationship, there is no relationship because respondents still do not continue to breastfeed exclusively.

According to research by Agustia et al. (2019), the attitude variable has no relationship with exclusive breastfeeding continuation. Her previous breastfeeding experience primarily determines a woman's positive attitude. So that if she has to breastfeed in public or at work, it does not become an impediment to her continuing to breastfeed or express breast milk anywhere (17). This study discovered that respondents had a generally positive average score and gave exclusive breastfeeding on average. However, there is no relationship because respondents do not exclusively breastfeed their children.

According to research by Lau et al. (2021), which conducted experiments to improve worker education during pregnancy, exclusive breastfeeding increased (18). However, according to research by Santos et al. (2022), the prevalence of exclusive breastfeeding was low among working mothers with no education, and the variation in the prevalence of exclusive breastfeeding was higher at the primary and secondary education levels (19). While the majority of respondents in this study had a good level of education, and if it was associated with the prevalence of continued exclusive breastfeeding, it was also high. As a result, those with a higher level of education are six times more likely to continue exclusively breastfeeding than those with a lower level of education.

According to research by Santos et al. (2022), the prevalence of exclusive breastfeeding is higher in respondents whose work status is not a worker (19). It is related to the pressure and freedom of time always to be close to the baby, making it easier to give breast milk continuously. Work pressure is also not felt because work pressure can cause work-related stress, so working women who are breastfeeding may decide to discontinue exclusive breastfeeding (20).

That work status, as in this study, will be closely related to the lactation support provided by the workplace. On the other hand, the availability of lactation rooms and policies are the most important things that must be provided for breastfeeding working mothers. The position of the two variables is a confounding variable that can affect both the level of knowledge and the mother's decision to continue or discontinue exclusive breastfeeding. However, based on the value of the odds ratio, these two workplace lactation support factors are protective factors. Lactation support in the workplace can be supplemented by providing free time at work to express breast milk, support from supervisors and coworkers, and a lactation-friendly environment.

The Government of the Republic of Indonesia, in inter-ministerial collaboration with the Ministry of Health, developed a GP2SP (women's health and productivity action) program to increase participation between the workplace, the community, and
the government, with one of the focuses being to increase breastfeeding during working hours in the workplace by providing a room for expressing breast milk equipped with equipment for storing breast milk and other supporting equipment. Business owners can help female employees who are breastfeeding by controlling the work environment (21).

The workplace can help female employees improve their knowledge. All forms of media can be used to disseminate information to female workers, with informative media in digital form facilitating information reach for working mothers. Informative and practical knowledge is required, such as how to express breast milk and store and prepare it for the baby's consumption.

CONCLUSION
This study has limitations in that the number of respondents is not too varied. So it will not be easy to generalize this study's results from a broad perspective.

According to the study's findings, the Knowledge variable was predicted to have a 5.5-fold relationship with the sustainability of exclusive breastfeeding for working mothers in the Banten area. Variable Lactation Room Lactation Policy is a workplace factor still unfulfilled by management.

GP2SP (women's health and productivity action) program strategies are being developed in industries and offices, using videos on the management of expressed breast milk and breastfeeding strategies for working mothers. Further research should look into regional proportions as well as industrial workers.

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