

# Impact of a Breastfeeding-Friendly Workplace on an Employed Mother's Intention to Continue Breastfeeding After Returning to Work

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## Abstract

**Background:** Ever-increasing populations of women in their childbearing years are choosing to become employed. Breastfeeding provides unique health advantages to both the infant and mother. A breastfeeding-friendly workplace might be an important factor for predicting breastfeeding rates among working women. To explore the impact of breastfeeding-friendly support on the intention of working mothers to continue breastfeeding, we conducted a survey at a female labor-intensive electronics manufacturer in Taiwan.

**Subjects and Methods:** A structured questionnaire survey was administered to 715 working mothers employed in an electronics manufacturing plant in Tainan Science Park in Southern Taiwan. Questionnaire content included female employee demographics, employment characteristics, continued breastfeeding behavior after returning to work, access to lactation rooms, and employee perception of the breastfeeding policy and support when raising their most recently born child.

**Results:** A higher education level (odds ratio [OR]=2.66), lower work load (8 work hours/day) (OR=2.66), lactation room with dedicated space (OR=2.38), use of breast pumping breaks (OR=61.6), and encouragement from colleagues (OR=2.78) and supervisors (OR=2.44) to use breast pumping breaks were significant predictors of continued breastfeeding for more than 6 months after returning to work.

**Conclusions:** The findings of the present study suggest that to encourage and increase the rate of continued breastfeeding, workplaces should establish dedicated breastfeeding rooms and maintain a comfortable and clean environment. Furthermore, employers should provide encouragement and support for working mothers to continue breastfeeding after returning to work.

## Introduction

THE POPULATION OF WOMEN becoming employed during their childbearing years is growing.<sup>1</sup> Although the benefits of breastfeeding to both the infant and mother are well established, employment is a persistent barrier to continued breastfeeding.<sup>2-5</sup> Lack of break time, inadequate facilities for pumping and storing milk, lack of resources that promote breastfeeding, and lack of support from employers and colleagues are among the challenges faced by employed mothers who want to continue breastfeeding by expressing their milk in the workplace. Breastfeeding provides unique health advantages to both the infant and mother,<sup>6</sup> and thus a breastfeeding-friendly workplace for the employed mother is recommended to increase the initiation and duration of breastfeeding.<sup>7-10</sup> In a breastfeeding-friendly workplace/policy, the provision of lactation rooms and breast pumping breaks for female employees to express breastmilk for chil-

dren is a critical element and may increase a mother's intention to continue breastfeeding after returning to work. A population cohort study<sup>3</sup> using the Taiwan National Birth Register database in 2005 revealed a decline in the prevalence of breastfeeding among employed mothers, and overall only 67.9%, 39.4%, 25.4%, and 12.7% mothers who started breastfeeding still breastfed their infants at 1, 3, 6, and 12 months after childbirth, respectively. Another survey of breastfeeding among employed mothers in Taiwan revealed that only 10.6% of mothers continued to breastfeed after returning to work.<sup>11</sup> Although more and more large companies have accepted the idea of a breastfeeding-friendly policy and established lactation rooms and breast pumping breaks in the workplace,<sup>12</sup> the effectiveness for continued breastfeeding among employed mothers is uncertain.

In the present study, we conducted a survey among mothers employed in a female labor-intensive electronics manufacturing company in Taiwan to explore the impact of

lactation services, such as time and space to express milk during the work period, that enable women to continue breastfeeding. The findings of the present study will contribute to a better understanding by occupational and environmental health nurses of the barrier to continued breastfeeding and the implementation of a breastfeeding-supportive workplace environment for these employed mothers.

## Subjects and Methods

### *Research setting and subjects*

This was a retrospective survey of a breastfeeding-friendly workplace and intention to continue breastfeeding after returning to work among employed mothers in Taiwan that was conducted from August 1, 2011 to April 30, 2012. The research setting was Company C, a large electronics manufacturer with high labor-intensive employees in the Tainan Science Park in Southern Taiwan, which is one of the Taiwan's largest areas for electronics manufacturers. This company has more than 20,000 employees, of whom 45% are female, and there are 10 manufacturing plants. Each plant provides at least four lactation rooms for working mothers, with the largest plant providing 11 lactation rooms for working mothers.

Company C was selected because, first, it was the one of several companies that have received funding from the Department of Health to establish lactation rooms in its factories; hence, it provides lactation rooms and breast pumping breaks for working mothers. Second, this company has many female employees. Third, the researcher was able to visit the company's plants and record information about the facilities and the space allocated to the lactation rooms, which can be classified into two types: breastfeeding rooms with independent space versus no dedicated space, only curtain separators; thus, the influence of different lactation room conditions in the breastfeeding-friendly environment on continuing breastfeeding behavior could be evaluated. Moreover, the female employees were office workers or worked in a clean room (a room that is maintained virtually free of contaminants, used in laboratory work and in the production of precision parts for electronic equipment). Office workers have higher educational and compensation levels than clean-room workers and generally work about 8 hours/day, but their positions encompass specific job responsibilities. By comparison, clean-room workers work 12-hour shifts. Their jobs are inconvenient and inflexible because they must remove and put on their clean-room suits when leaving and returning to their workstation. Therefore, we were able to observe the association between different working conditions and intention to continue breastfeeding.

The researcher inquired about the willingness of this company to participate in the study by first sending an explanatory letter about the research project and then visiting the employee health management department director of the company to explain the purpose of the research. After receiving consent from the employee health management department, occupational and environmental health nurses helped distribute and collect the employed mothers' self-reported questionnaires. The questionnaire was distributed to 981 female employees who had recently taken maternity leave between January 2009 and January 2011, as recorded by the human resources department. Female workers who met the

inclusion criteria (maternity leave between January 2009 and January 2011) could choose to participate in the survey. In total, 715 valid questionnaires were collected, giving a response rate of 72.9%. The study was approved by the Institutional Review Board of I-Shou University, Kaohsiung, Taiwan.

### *Assessment instruments and definitions*

Questionnaires were used to collect data on female employees' demographics, employment characteristics, continuing breastfeeding behavior after returning to work, access to lactation room types, and employees' perception of breastfeeding-friendly policy and support when raising their most recently born child. Mean time required to complete the survey was 15 minutes.

**Demographics and employment characteristics.** Participants' self-reported demographic and employment characteristics were assessed. A demographic inventory was used to gather data on age, education, husband's education, and child information. Level of education was used as a proxy measure for social class and categorized as follows: (1) high school or below or (2) college or above.

Employment characteristics were collected, including worksite (office vs. clean room), shift work ("Did you do shift work after you returned to work [yes/no]?"), and work hours per day (8 hours/day or 9–14 hours/day).

**Continuing breastfeeding behavior.** This study explored the predictors of continuing breastfeeding after returning to work. Working mothers were defined as continuing breastfeeding if they continued breastfeeding for at least 1 month after returning to work. Participants were asked, "Did you continue to breastfeed after returning to work (yes/no), and how long did you continue to breastfeed?" In Taiwan, most companies provide only 8 weeks of maternity leave. Hence, we also assessed the breastfeeding intention during maternity leave, and participants were asked, "Did you breastfeed your baby during maternity leave (yes/no)?" Data of self-reported breastfeeding knowledge were collected in the study, including "Do you think your breastfeeding knowledge and information is sufficient (sufficient, insufficient, and want or need more information)?"

**Access to lactation room type and employees' perception of breastfeeding-friendly policy and support.** In Taiwan, the law stipulates that employers need to provide 8 weeks of maternity leave for female employees. The construction and implementation of a breastfeeding-friendly policy in the workplace are still new practices in Taiwan. The government encourages companies or industries to provide breastfeeding support services, such as breast pumping breaks and lactation rooms. Employees must bring their own breast pumps. In our study, all lactation rooms in this company contain a table, chair, sink, electrical outlets, and refrigerator. Employers allow working mothers to have two breast pumping breaks each day with each break lasting no more than 30 minutes. The researcher visited the plants and recorded observations about the facilities and space of the lactation rooms, which were classified into two types: breastfeeding rooms with dedicated space versus those without dedicated space, only

curtain separators. Working mothers pumping in rooms without dedicated space meant that working mothers pumped in a public health center room without independent space, only curtain separators in a space used mainly for other purposes, such as a public health center for acute trauma or injuries.

To understand an employee's perception of the breastfeeding-friendly policies in the workplace, participants responded to the following questions: "What kind of lactation room was available in your workplace (independent space/without dedicated space)?," "Were you aware of the pumping break policy (yes/no)?," "Did you ever use the pumping break policy after returning to work (yes/no)?," and "Did you feel embarrassed if you used breast pumping breaks (yes/no)?" Moreover, to assess employees' perception of workplace breastfeeding support, participants were asked, "After returning to work, did your colleagues, supervisor, and environmental health nurses encourage you to use breast pumping breaks (yes/no)?"

### Statistical analysis

This study explored the predictors of continuing breastfeeding after returning to work. The primary independent variables of interest were demographics (age, working mother's education level, spouse's education level), employment characteristics (worksite, shift work, work hours per day), type of lactation room, breastfeeding-friendly policy (awareness of breast pumping breaks, using breast pumping breaks) and support (encouragement from colleagues, supervisors, and environment health nurses), and self-reported breastfeeding knowledge. The dependent variable in this study was continuing to breastfeed after returning to work. Working mothers were defined as continuing breastfeeding if they continued for at least 1 month after returning to work from maternity leave. Hence, working mothers who did not breastfeed at the beginning of maternity leave and breastfed for less than 1 month after returning to work were categorized as not continuing to breastfeed after returning to work and were treated as a reference group in the logistic regression analyses.

All analyses were performed using Statistical Analysis System (SAS version 6.12; SAS Institute, Cary, NC) software. Participants' profiles among working mothers were reported. The effects of demographics, employment characteristics, and breastfeeding-friendly policy on continuing to breastfeed after returning to work were estimated using  $\chi^2$  tests and logistics regression. A *p* value of <0.05 was considered statistically significant. To determine whether the independent variables predict continuing to breastfeed after returning to work, multiple logistic regression analyses were used to identify independent variables that were independently associated with continuing to breastfeed for at least 6 months after returning to work and continuing to breastfeed for more than 6 months after returning to work, respectively. Relative risk was calculated for each independent variable in the logistic models, and 95% confidence intervals were calculated using maximum likelihood methods.

### Results

As shown in Table 1, 74.6% of participants were 30–39 years old, and 71.7% had college and higher degrees; most of

TABLE 1. CHARACTERISTICS OF THE STUDY SAMPLE (*N*=715)

Variable	n	%
Age (years)		
20–29	171	23.9
30–39	533	74.6
≥40	11	1.5
Education		
High school education and below	203	28.3
College and above	512	71.7
Husband's education		
High school and below	184	25.7
College and above	531	74.3
Worksite		
Clean room	320	44.8
Office	395	55.2
Shift work		
Yes	334	46.7
Work hours per day		
8	119	15.7
9–14	596	83.3
Awareness of lactation room		
Yes	693	98.3
Access to use and lactation room type		
With independent space	608	85.0
No independent space	107	15.0
Using two breast pumping breaks per day		
Yes	259	36.2
No	456	63.8
Breastfeeding during maternity leave		
Never breastfed	80	11.2
Ever breastfed	635	88.8
Continue to breastfeed after returning to work (breastfed for at least 1 month)		
Yes	356	49.8
No	359	50.2
Continuing breastfeeding duration		
1–3 months	69	9.6
4–6 months	115	16.1
7–12 months	118	16.5
>12 months	54	7.6
Self-reported breastfeeding knowledge		
Sufficient	384	53.7
Insufficient	331	46.3

their husbands also had a high education level (74.3%). Shift workers comprised 46.7% of the population, and clean-room workers comprised 44.8%. Only 15.7% of the mothers averaged 8 hours of work/day. Among mothers in the study sample, 85% had access to a lactation room with independent space, and 15% had access to a lactation room without dedicated space. Most of the participating subjects (63.8%) did not take advantage of breast pumping breaks, and 50.2% did not continue to breastfeed after returning to work. The breastfeeding rates after returning to work were 9.6%, 16.1%, 16.5%, and 7.6%, respectively, for 1–3 months, 4–6 months, 7–12 months, and more than 12 months, respectively.

Continued breastfeeding behavior after returning to work was grouped according to demographics, employment characteristics, and breastfeeding-friendly policy, as shown in Table 2. All independent variables were significantly

TABLE 2. CONTINUED BREASTFEEDING BEHAVIOR BY DEMOGRAPHIC, EMPLOYEE CHARACTERISTICS, AND BREASTFEEDING-FRIENDLY POLICY

Variable	Continue to breastfeed after returning to work			p value for $\chi^2$ test
	No (n=379)	≤6 months (n=164)	>6 months (n=172)	
Age (years)				0.0019
<30	95 (55.6)	52 (30.4)	24 (14.0)	
≤30	264 (48.5)	132 (24.3)	148 (27.2)	
Education				<0.0001
College and above	222 (43.4)	142 (27.7)	148 (28.9)	
High school and below	137 (67.5)	42 (20.7)	24 (11.8)	
Husband's education				0.0012
College and above	246 (46.3)	143 (26.9)	142 (26.8)	
High school and below	113 (61.4)	41 (22.3)	30 (16.3)	
Worksite				<0.0001
Clean room	198 (61.9)	67 (20.9)	55 (17.2)	
Office	161 (40.8)	117 (29.6)	117 (29.6)	
Shift work				<0.0001
Yes	202 (60.5)	77 (23.0)	55 (16.5)	
No	157 (41.2)	107 (28.1)	117 (30.7)	
Work hours per day				0.0014
8	54 (45.4)	32 (26.9)	33 (27.7)	
9–14	305 (51.1)	152 (25.5)	139 (23.3)	
Access to lactation room				0.3043
Independent space	299 (49.2)	157 (25.8)	152 (25.0)	
No independent space	60 (56.1)	27 (25.2)	152 (25.0)	
Breastfeeding knowledge				0.0210
Sufficient	189 (49.2)	88 (22.9)	107 (27.9)	
Insufficient	170 (51.4)	96 (29.0)	65 (19.6)	
Awareness of breast pumping breaks				<0.0001
Yes	240 (44.9)	150 (28.1)	144 (27.0)	
No			28 (15.4)	
Using breast pumping breaks				<0.0001
Yes	119 (65.8)	34 (18.8)	128 (49.4)	
No	342 (75.0)	70 (15.4)	44 (9.6)	

TABLE 3. ASSOCIATION BETWEEN INTENTION TO CONTINUE BREASTFEEDING AND PREDICTORS AMONG EMPLOYED MOTHERS BY MULTIPLE LOGISTIC REGRESSION

Variable	Continue to breastfeed after returning to work			
	Between 1 and 6 months		After 6 months	
	OR (95% CI)	p value	OR (95% CI)	p value
Age (<30 vs. ≥30 years)	1.63 (0.95–2.85)	0.0828	0.91 (0.43–1.95)	0.8250
Education (≥College vs. ≤High school)	1.33 (0.74–2.40)	0.3313	2.66 (1.24–5.71)	0.0119
Husband's education (≥College vs. ≤High school)	1.07 (0.59–1.97)	0.8083	0.72 (0.34–1.51)	0.3980
Worksite (Clean room vs. Office)	0.98 (0.55–1.76)	0.9694	0.65 (0.32–1.31)	0.2370
Shift work (Yes vs. No)	0.66 (0.35–1.21)	0.1832	0.70 (0.34–1.45)	0.3475
Work hours per day (≤8 vs. 9–14)	1.45 (0.65–3.06)	0.3775	2.66 (1.16–6.11)	0.0206
Access to lactation room (Independent space vs. No independent space)	1.17 (0.51–2.75)	0.7049	2.38 (1.14–6.32)	0.0284
Breastfeeding knowledge (Sufficient vs. Insufficient)	0.64 (0.38–1.02)	0.0667	0.81 (0.45–1.46)	0.5014
Awareness of breast pumping breaks (Yes vs. No)	1.09 (0.62–1.95)	0.7498	0.87 (0.43–1.73)	0.6921
Using breast pumping breaks (Yes vs. No)	33.1 (18.0–64.1)	<0.0001	61.6 (31.2–121.6)	<0.0001
Colleagues encourage breast pumping breaks (Yes vs. No)	2.53 (1.21–5.32)	0.0133	2.78 (1.14–6.76)	0.0235
Supervisor encourages breast pumping breaks (Yes vs. No)	2.45 (1.17–5.05)	0.0156	2.44 (1.06–5.61)	0.0355
Environmental health nurses encourage breast pumping breaks (Yes vs. No)	1.79 (0.88–3.62)	0.1060	1.74 (0.76–3.95)	0.1861

CI, confidence interval; OR, odds ratio.



correlated with continued breastfeeding behavior after returning to work ( $p < 0.05$ ), except for access to a lactation room ( $p = 0.3043$ ). Young age, lower education, clean-room work, shift work, long work hours, lack of awareness or use of breast pumping breaks, and self-reported insufficient breastfeeding knowledge were all associated with discontinuing breastfeeding after returning to work.

The results of the logistic regression analysis evaluating independent predictors of continuing to breastfeed after returning to work during the first 6 months and continuing to breastfeed for more than 6 months are shown in Table 3. Working mothers who did not breastfeed at the beginning or breastfed for less than 1 month were treated as the reference group. To determine independent variables and intention to continue breastfeeding after returning to work for the first 6 months, taking advantage of breast pumping breaks (odds ratio [OR]=33.1), and encouragement by colleagues (OR=2.53) or supervisors (OR=2.45) to take breast pumping breaks were significant predictors of continued breastfeeding during the first 6 months after returning to work. For continuing breastfeeding for more than 6 months, a higher education level (OR=2.66), lower work load (8 work hours/day; OR=2.66), lactation room with dedicated space (OR=2.38), taking breast pumping breaks (OR=61.6), and encouragement by colleagues (OR=2.78) or supervisors (OR=2.44) to take advantage of breast pumping breaks were significant predictors of intention to continue to breastfeed for more than 6 months after returning to work.

## Discussion

The results of the present study revealed that the rate of breastfeeding among employed mothers rapidly decreases after returning to the workplace. Although 88.8% (635 subjects) initiated breastfeeding at the beginning of maternity leave, the continuing breastfeeding rate rapidly decreased after returning to work (356 subjects [49.8%] continued to breastfeed for at least 1 month after returning to work). Almost 39% (635 - 356 = 279) of working mothers discontinued breastfeeding within 1 month of returning to work. Only 7.6% of these women continued to breastfeed for more than 1 year, even if lactation rooms were available. A previous population-based cohort study in Taiwan<sup>3</sup> reported that the overall prevalence of initial breastfeeding was 83.7%. Overall, 67.9%, 39.4%, 25.4%, and 12.7% of mothers who started breastfeeding still breastfed their infants at the age of 1, 3, 6, and 12 months, respectively. The prevalence rate of breastfeeding has been declining, and employment is a persistent barrier to continued breastfeeding. A study in the United States<sup>13</sup> investigated the effect of maternity leave length and time of first return to work on breastfeeding, and, compared with those returning to work within 1–6 weeks, women who had not yet returned to work were more likely to initiate breastfeeding, to continue breastfeeding beyond 6 months, and to breastfeed beyond 3 months. A delay in returning to work might increase the duration of breastfeeding. In Taiwan, most companies provide only 8 weeks of paid maternity leave. Juggling breastfeeding and paid work can be a challenge to breastfeeding success. One study<sup>14</sup> explicitly demonstrated that a maternity leave of 6 weeks or less or lasting 6–12 weeks after delivery was associated, respec-

tively, with fourfold and twofold higher odds of failure to establish breastfeeding and an increased probability of cessation after successful establishment, relative to women not returning to work, after adjusting for covariates. The impact of a short postpartum leave on breastfeeding cessation was stronger among non-managers, women with inflexible jobs, and those with high psychosocial distress. To achieve the World Health Organization's recommendation of 6 months of exclusive breastfeeding, working mothers need a more supportive policy and an environment that protect and promote breastfeeding. Employers play a critical role in mothers' success with breastfeeding when the women work full-time. The government could consider extending the maternity leave and encouraging employers to advocate for an extended paid postpartum leave and greater flexibility in the working conditions for breastfeeding women.

In our study, women had a low intention to breastfeed, and the reasons included lack of time to breastfeed due to long work hours, and difficulty breastfeeding due to clean-room and shift work. In the workplace in this study, the working mother often worked more than the legally mandated 8 hours (83.3%), and 46.7% needed to take shifts and thus bear a heavy work burden. Our data revealed that working mothers with shift work had lower prevalence to use the breast pumping breaks than non-shift workers (27.2% vs. 44.0%,  $p < 0.0001$ ). In addition, most working mothers (44.8%) worked in the clean room. Our data revealed that 74.7% of the working mothers understand the company policy providing two breast pumping breaks per day, and there was no difference between clean-room and office-worksite working mothers (72.1% vs. 77.6,  $p = 0.0911$  [data not shown]). We found that mothers working in the clean room had more difficulties using the breast pumping breaks than those at the office worksite (24.3% vs. 43.6%,  $p < 0.0001$  [data not shown]), implying that an inconvenient working environment is an important barrier to breastfeeding among working mothers. Similar results were demonstrated with working mothers at a semiconductor manufacturer and fabrication workers who needed time to take off and put on their clean-room suit.<sup>11</sup> A longitudinal study<sup>15</sup> evaluating work status on duration of breastfeeding showed that working full-time at 3 months postpartum decreases the breastfeeding duration, but working part-time does not reduce the initiation or duration, whereas working part-time for more than 4 hours per day decreases duration to a lesser extent than does working full-time. Thus, the more hours the mother works, the fewer times per day her infant receives breastmilk (including expressed milk). In addition, to facilitating breastfeeding, the reduction in work hours does not have to be large; this study found a positive effect, relative to full-time work, when part-time work was defined as less than 35 hours per week, or a maximum of 7 hours/day.

In our study, we found an association between a high level of education and continued breastfeeding. One study<sup>16</sup> that explored breastfeeding intention of female physicians suggested that mothers' education may influence their breastfeeding duration and found that their intentions and knowledge correlated with their breastfeeding initiation practices. Women employed as professionals breastfeed longer than other working mothers.<sup>17,18</sup> In our study, it is possible that white-collar working mothers have more control

over their environment and schedules and are able to combine breastfeeding and working more successfully than blue-collar working mothers.

This study found that a breastfeeding-friendly breast pumping break policy in the workplace significantly increased continued breastfeeding behavior after returning to work. In particular, encouragement to use breast pumping breaks from working mothers' colleagues and supervisors can significantly affect their intention to continue breastfeeding after returning to work. Moreover, lactation rooms with a dedicated space increased the willingness to continue to breastfeed. Hence, managers' attitude and support influence female employees' perception of workplace breastfeeding support. Previous studies indicated<sup>8,19</sup> that managers influence the work climate of breastfeeding support by either adhering to or ignoring company policies, informally supporting or discouraging breastfeeding employees, or managing or disregarding issues arising among their coworkers. In a breastfeeding-friendly workplace, the provision of lactation rooms is a critical element and should include a private and comfortable room at the worksite. Regarding lactation rooms with dedicated spaces in our data, however, 51.3% of the subjects used them, but there was only a 30% satisfaction regarding the lactation room (data not shown). The breastfeeding rooms in the plants do not seem to be ideal in terms of cleanliness and comfort. Regarding breastfeeding rooms without dedicated spaces, most participants believe that there should be breastfeeding rooms with dedicated space for employee use; 28% of the participants expressed this need (data not shown). Past studies<sup>20,21</sup> surveying employers' attitudes about breastfeeding-friendly support indicated that employers would be willing to help women who wished to breastfeed or express milk in the workplace. These employers, however, also stated that they saw little value to their business of supporting breastfeeding in the work environment; even when they were aware of the benefit of breastfeeding for the mother, infant, and employers, they did not place a high priority on providing breastfeeding support. In our study, 98.3% of working mothers were aware of the availability of a lactation room, but only 36.2% took advantage of the two breast pumping break policy. Perhaps it is not enough for employers to provide space (dedicated lactation room); employers should also have a positive attitude toward their pregnant employee. A previous study in England<sup>22</sup> reported that employers should do more to support breastfeeding, including providing pregnant staff with information about breastfeeding support that they should expect and could therefore plan to use, including access to facilities to express and store breastmilk, to enable them to work flexible hours, and to take rest breaks during working hours. Health plans and employers may be able to promote breastfeeding by providing breastfeeding education and support.<sup>23</sup>

Findings of another study<sup>7</sup> indicated that the most significant problem encountered by the breastfeeding mother is the lack of an adequate facility in which to pump. In our study, working mothers pumped in a public health center room without dedicated space, only curtain separators. We compared different breastfeeding rooms on the intention to continue breastfeeding (data not shown) and found that working mothers with access to lactation rooms with dedicated space had a higher awareness of the breastfeeding-friendly policy of breast pumping breaks (79.3% vs. 48.5%,  $p < 0.0001$ ), had more

encouragement to use the breastfeeding-friendly policy of breast pumping breaks from their colleagues (78.5% vs. 66.4%,  $p = 0.0045$ ), supervisors (61.0% vs. 50.5%,  $p = 0.0382$ ), and environmental health nurses (68.8% vs. 54.2%,  $p = 0.0075$ ), and were more likely agree that a breastfeeding-friendly policy of breast pumping breaks helps working mother continue to breastfeed (93.4% vs. 81.3%,  $p < 0.0001$ ). Working mothers with access to lactation rooms without dedicated space felt embarrassed to use breast pumping breaks (42.9% vs. 30.5%,  $p = 0.014$ ).

A breastfeeding environment without dedicated space leads to earlier cessation of breastfeeding. Our data suggest that employers should establish lactation rooms with a dedicated space so that they can be used by mothers who return to work after giving birth to increase the rate of continued breastfeeding.

## Conclusions

There are some limitations to our study. First, this study was cross-sectional in design; therefore, only association could be evaluated, not causation. Second, assessment of predictors adopted a dichotomized classification, which was simplistic, and predictor measurements mainly relied on self-report, which might have biased the results. Third, a selection bias due to non-response was inevitable. Nevertheless, higher education, lower work load, lactation room with independent space, taking advantage of breast pumping breaks, and encouragement by colleagues and supervisors to use breast pumping breaks were significant predictors of continuing to breastfeed for more than 6 months after returning to work. The findings of this study suggested that workplaces that have established dedicated breastfeeding rooms should maintain a comfortable and clean environment, so that they can truly be a breastfeeding-friendly workplace environment, enhance the frequency of usage of lactation rooms, and increase the rate of continued breastfeeding.

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## Disclosure Statement

No competing financial interests exist.

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