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Employee Perception of Breastfeeding-Friendly Support and Benefits of Breastfeeding as a Predictor of Intention to Use Breast-Pumping Breaks After Returning to Work Among Employed Mothers

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Abstract

Background: Although increasing numbers of large companies are complying with demands for a breastfeeding-friendly workplace by providing lactation rooms and breast-pumping breaks, the effectiveness for intention to use breast-pumping breaks to express breast milk among employed mothers is uncertain. To explore the impact of employees' perceived breastfeeding support from the workplace and the benefits of breastfeeding on a woman's intention to use breast-pumping breaks after returning to work, 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, and breastfeeding behavior after returning to work, as well as employees' perception of breastfeeding-friendly support and awareness of the benefits of breastfeeding when raising their most recently born child.

Results: Higher education (odds ratio [OR] 2.33), non–clean room worksite (OR 1.51), awareness of breast-pumping breaks (OR 4.70), encouragement by colleagues to use breast-pumping breaks (OR 1.76), and greater awareness of the benefits of breastfeeding (OR 1.08) were significant predictors of the use of breast-pumping breaks after returning to work, whereas the perception of inefficiency when using breast-pumping breaks reduced an employed mother's intention to use breast-pumping breaks (OR 0.55).

Conclusions: This study finds an association between an appreciation of the benefits provided by the employer and the likelihood of increased usage of breastfeeding breaks. Workplaces and employers can help employed mothers to understand the benefits of breastfeeding, which may increase the intention of the mother to take breast-pumping breaks after returning to work.

Introduction

An important factor influencing duration of breastfeeding is a mother's employment status.[1–4] An employer's attitude influences female employees' perception of workplace breastfeeding support.[5] Employers may 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 coworkers.[6–8] Breastfeeding provides unique health advantages to both the infant and mother,[9] and thus a breastfeeding-friendly workplace for the employed mother is recommended to increase the initiation and duration of breastfeeding.[10–13] In a breastfeeding-friendly workplace/policy, the provision of lactation rooms and breast-pumping breaks for female employees to express breastmilk for their infants is a critical element and may increase a mother's intention to continue breastfeeding after returning to work. Although increasing numbers of large companies are complying with the demands for a breastfeeding-friendly workplace to provide lactation rooms and breast-pumping breaks in the workplace,[14] the effectiveness for intention to use breast-pumping breaks to express breastmilk among employed mothers is uncertain. A study in the United Kingdom[15] explored the role of employers in supporting women who wish to breastfeed and work and reported that 90% of respondents stated that employers should do more to support breastfeeding. Even when the

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workplace has lactation rooms and a breast-pumping break policy, breastfeeding at work is likely to be unsuccessful if the employer is not supportive of the mother.[11]

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 employees' perceived breastfeeding support from the workplace on the woman's use of breast-pumping breaks after returning to work. We also surveyed breastfeeding knowledge regarding the benefits of breastfeeding for an employed mother. We postulated that greater awareness of the benefits of breastfeeding and the perception of breastfeeding support by the employed mother would be independently predictive of the use of breast-pumping breaks after returning to work. The findings of the present study will contribute to a better understanding by occupational and environmental health nurses of the barrier to take advantage of the breast-pumping break policy and facilitate the implementation of a breastfeeding-supportive workplace climate for 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 conducted from August 1, 2011 to April 30, 2012. The detailed methodology of this study has been reported elsewhere.[16] The research setting was Company C, a large electronics manufacturer in the Tainan Science Park in Southern Taiwan whose employees perform highly labor-intensive work. 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, and all lactation rooms in this company contain a table, chair, sink, electrical outlets, and a refrigerator.

Company C was selected because, first, it is 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. Thus, the impact of an employee's perceived breastfeeding support for using breast-pumping breaks in a seemingly breastfeeding-friendly environment could be evaluated. Second, this company has many young female employees. Moreover, the female employees are office workers or clean room workers (a room that is maintained virtually free of contaminants used in laboratory work and in the production of precision parts for electronic equipment). Therefore, we were able to observe the association between different employee characteristics and intention to use the breast-pumping breaks policy.

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 consent was received 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.

Assessment instruments and definitions

Questionnaires were used to collect data on female employees' demographics, employment characteristics, breastfeeding behavior after returning to work, and employees' perception of breastfeeding-friendly support and awareness of the benefits of breastfeeding 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).

Use of breast-pumping breaks policy. This study explored the predictors of using breast-pumping breaks among employed women after returning to work. In Taiwan, the law stipulates that employers must 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 a breastfeeding-friendly policy, such as breast-pumping breaks and lactation rooms. Employees must bring their own breast pumps. In our study, employers allowed working mothers to have two breast-pumping breaks each day, with each break lasting no more than 30 minutes. Participants were asked, "Did you usually (frequency of the breast-pumping breaks was more than 4 days a week) use the two permitted breast-pumping breaks to express breastmilk for children after returning to work (yes/no)?"

Employees' perception of breastfeeding-friendly support. To understand an employee's perception of the breastfeeding-friendly policy and support in the workplace, participants responded to the following questions: "Were you aware of the availability of the lactation room after returning to work?" (yes/no), "Were you aware of the breast-pumping break policy?" (yes/no), and "Did your company provide a lactation consultant for education or breastfeeding activities?" (yes/no). Moreover, to assess employees' perception of workplace breastfeeding support and climate, participants were asked, "Did you feel embarrassed if you used breast-pumping breaks?" (yes/no), "After returning to work, did your colleagues, supervisor, and environmental health nurses encourage you to take breast-pumping breaks?" (yes/no), "Do you agree that taking breast-pumping breaks will reduce

a working mother's work efficiency?" (yes/no), and "Do you feel that taking breast-pumping breaks will affect your supervisor's assessment of your performance?" (yes/no).

Employees' awareness of the benefits of breastfeeding. An employee's awareness of the benefits of breastfeeding for the mother, infant, and employer was investigated using a checklist. Participants were asked whether they had ever heard of these breastfeeding benefits (yes/no). The benefits of breastfeeding reported in previous studies[11,13,17–22] were generalized and are listed as 13 items.

Statistical analysis

This study explored the predictors of intention to use breast-pumping breaks after returning to work. The primary independent variables of interest were demographics (age, working mother's education level, and spouse's education level), employment characteristics (worksite, shift work, and work hours per day), employee's perception of breastfeeding-friendly policy (awareness of lactation room, awareness of breast-pumping breaks, and employer ever provided a lactation consultant for breastfeeding activities) and a supportive climate (a feeling of embarrassment when using breast-pumping breaks, encouragement from colleagues, supervisors, and environment health nurses, a feeling of inefficiency when using breast-pumping breaks, and employed mother's performance assessment by her supervisor when using breast-pumping breaks), and self-reported awareness of breastfeeding benefits. The dependent variable in this study was the use of breast-pumping breaks after returning to work.

All analyses were performed using Statistical Analysis System software (SAS version 6.12; SAS Institute, Cary, NC). Participants' profiles among working mothers were reported. The effects of demographics, employment characteristics, perception of breastfeeding-friendly support, and awareness of breastfeeding benefits on the use breast-pumping breaks after returning to work were estimated using χ^2 tests and logistics regression analysis. A p value of <0.05 was considered statistically significant. To determine whether the independent variables predict the use of breast-pumping breaks after returning to work, multiple logistic regression analyses were used to identify independent variables that were independently associated with the breast-pumping breaks after returning to work. The odds ratio (OR) was calculated for each independent variable in the logistic models, and 95% confidence intervals were calculated using maximum likelihood methods.

Results

Employee characteristics are shown in Table 1. Most (76.1%) of the participants were more than 30 years of age; 71.7% had college or higher degrees, and most of 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%. The majority (83.3%) of the mothers averaged more than 8 hours of work/day. Among employed mothers, only 36.2% reported using breast-pumping breaks after returning to work. The use of breast-pumping breaks after returning to work was grouped according to employment characteristics, and the findings revealed that older age ($p=0.0459$), higher education among employed mothers ($p<0.0001$) and their husbands ($p=0.0002$), non–clean room work versus office work ($p<0.0001$), and no shift work ($p<0.0001$) were strongly associated with the use of breast-pumping breaks in univariate analysis.

The estimated effects of an employee's perceived breastfeeding-friendly support for the use of breast-pumping breaks are summarized in Table 2. All independent variables were significantly correlated with the use of breast-pumping breaks after returning to work ($p<0.05$). Awareness of the availability of a lactation room (98.8% vs. 95.8%, $p=0.0173$ by Fisher's exact test) and breast-pumping break policy (90.7%

Table 1. Use of Two Breast-Pumping Breaks per Day by Demographic and Employee Characteristics and by Breastfeeding-Friendly Policy

Variable	*Total (%)*	*Use of breast-pumping breaks (%)*		p *value for* χ^2 *test*
		Yes (n = *259*)	*No* (n = *456*)	
Age (years)				0.0459
<30	23.9	19.7	26.3	
≥30	76.1	80.3	73.7	
Education				<0.0001
High school education and below	28.3	15.1	36.0	
College and above	71.7	84.9	64.0	
Husband's education				0.0002
High school education and below	25.7	17.8	30.3	
College and above	74.3	82.2	69.7	
Worksite				<0.0001
Clean room	44.8	31.3	52.4	
Office	55.2	68.7	47.6	
Shift work				<0.0001
Yes	46.7	35.1	53.3	
No	53.3	64.9	46.7	
Work hours per day				0.5164
8	16.7	15.4	17.3	
9–14	83.3	84.6	82.7	

Table 2. Association Between Employees' Perceived Breastfeeding-Friendly Support and Use of Breast-Pumping Breaks Among Working Mothers

Agree with the statement	*Total (%)*	*Using breast-pumping breaks per day (%)*		p *value for* χ^2 *test*
		Yes	*No*	
Awareness of lactation room after returning to work (yes)	98.3	98.8	95.8	0.0173[a]
Awareness of breast-pumping breaks policy (yes)	74.7	90.7	65.6	< 0.0001
Employer ever provide a lactation consultant (yes)	37.2	43.6	33.6	0.0074
Do you feel embarrassed if you use breast-pumping breaks? (yes)	32.5	25.9	36.2	0.0046
My colleagues encourage me to use breast-pumping breaks after returning to work (yes)	76.6	86.9	70.8	< 0.0001
My supervisor encourages me to use breast-pumping breaks after returning to work (yes)	59.4	71.0	52.9	< 0.0001
My environmental health nurses encourage me to use breast-pumping breaks after returning to work (yes)	66.6	76.5	61.0	< 0.0001
I agree that two breast-pumping breaks can reduce a working mother's work efficiency (yes)	51.1	40.9	56.8	< 0.0001
I feel that taking two breast-pumping breaks will influence a supervisor's evaluation of my performance (yes)	45.2	38.6	48.9	0.0079

[a]By Fisher's exact test.

vs. 65.6%, $p < 0.0001$), provision of a lactation consultant (43.6% vs. 33.6%, $p = 0.0074$), and encouragement from colleagues (86.9% vs. 70.8%, $p < 0.0001$), supervisors (71.0% vs. 52.9%, $p < 0.0001$), and environmental health nurses (76.5% vs. 1.0%, $p < 0.0001$) were all associated with the use of breast-pumping breaks after returning to work. A feeling of embarrassment (25.9% vs. 36.2%, $p = 0.0046$), perception of inefficiency (40.9% vs. 56.8%, $p < 0.0001$), and believing that breastfeeding breaks would affect their supervisor's assessment of their performance (38.6% vs. 48.9%, $p = 0.0079$) were all associated with discontinuation of taking breast-pumping breaks after returning to work.

The employed mothers' awareness rate of the benefits of breastfeeding is shown in Table 3. Most of the items had a >70% awareness rate. Regarding the last question (Item 13), only 57.1% were aware that mothers of breastfed babies tend to be more productive at work and miss fewer days because of the need to stay home with a sick child. In addition, only 63.4% were aware of the benefit of breastfeeding for the child (Item 9) that the incidence, severity, and duration of infectious disease are also significantly decreased, including diarrhea and respiratory infections. In a comparison of the awareness rate between the two groups (those taking breast-pumping breaks vs. those not taking breast-pumping breaks), employed mothers who took breast-pumping breaks had a significantly higher awareness rate among eight items of the benefits of breastfeeding than employed mothers who did not use take breast-pumping breaks (Items 1–3, 7, 8, 10, 11, and 13; all $p < 0.05$).

The results of the logistic regression analysis evaluating independent predictors of the breast-pumping breaks after returning to work are shown in Table 4. To determine independent variables and the use of breast-pumping breaks after returning to work, higher education (OR 2.33), non–clean room work (OR 1.51), awareness of breast-pumping break policy (OR 4.70), encouragement by colleagues (OR 1.76) to take breast-pumping breaks, and increased awareness of the benefits of breastfeeding (OR 1.08) were significant predictors of the use of breast-pumping breaks after returning to work, whereas employed mothers agreed that perception of inefficiency (OR 0.55) when using breast-pumping breaks was a significant predictor of discontinuing to take breast-pumping breaks after returning to work.

Discussion

Breastfeeding is an unequaled process of providing the ideal food and care for the healthy growth and physical and psychological development of infants. Public health agencies around the world have renewed their efforts to increase the incidence and duration of breastfeeding. Returning to work while still breastfeeding presents a challenge, however, and thus many women stop breastfeeding. Lack of break time, inadequate facilities for pumping and storing milk, lack of resources that promote breastfeeding and breastfeeding knowledge, 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.[1–4] Therefore, it is very important that the workplace provide breastfeeding-friendly and supportive working conditions (e.g., breastfeeding breaks, breastfeeding facilities, breastfeeding education program or skilled consultants, and positive attitudes of employers and colleagues toward breastfeeding workers to allow new mothers to

Table 3. Association Between Awareness of Benefits of Breastfeeding and Use of Breast-Pumping Breaks

Employed mother reporting awareness of these benefits of breastfeeding	*Total (%)*	*Use of breast-pumping breaks (%)*		p *value for* χ^2 *test*
		Yes	*No*	
1. Increase caloric requirements burning (yes)	90.4	95.0	87.9	0.0011
2. Promote involution of the uterus from increased contractions (yes)	89.5	95.4	86.6	0.0002
3. May decrease the chances of becoming pregnant (yes)	75.7	82.2	71.9	0.0020
4. Increase level of prolactin as well as oxytocin, and these hormones are thought to be mood enhancing—a benefit to new mother trying to combine newborn care, breastfeeding, and work (yes)	67.4	69.1	66.9	0.5407
5. Breastfeeding mothers report a special bond or closeness with the infants they breastfeed (yes)	92.5	94.6	91.5	0.1226
6. Pumping at work provides the mother with a sense that she is doing something for her infant while working (yes)	93.9	95.4	93.0	0.2023
7. Incentive to the parents is economic (relative to the purchase of formula) (yes)	95.7	98.5	95.0	0.0120
8. There is less investment in sick child office visits and hospitalizations (yes)	81.4	87.3	79.2	0.0067
9. The incidence, severity, and duration of infectious disease are also significantly decreased, including diarrhea, respiratory infections, otitis media, urinary tract infections, and meningitis (yes)	63.4	64.9	62.7	0.5668
10. Oral development is enhanced—this is thought to be because of the action of the mouth when sucking the breast (yes)	66.0	71.8	62.9	0.0159
11. Infants exclusively breastfed for 4 months exhibit advanced physical and behavioral development during their first year of life (yes)	70.1	75.3	67.3	0.0252
12. Children who are breastfed score approximately 7 or 8 points higher on intelligence tests than children who are not breastfed (yes)	74.0	78.4	71.9	0.0580
13. Mothers of breastfed babies tend to be more productive at work and miss fewer days because of staying home with a sick child (yes)	57.1	64.9	52.6	0.0015

continue frequent breastfeeding or milk expression and thereby maintain sufficient milk production to cover the baby's needs). A previous study[16] revealed that taking breast-pumping breaks (OR 61.6) was a very significant predictor of the intention to continue to breastfeed for more than 6 months after returning to work. That is, employed mothers who take breast-pumping breaks after returning to work and maintain an adequate milk supply are more likely to continue breastfeeding. Therefore, it is important to encourage and support the intention of employed mothers to take breast-pumping breaks when returning to work. Breastfeeding breaks are short periods reserved during the workday to breastfeed one's child or express milk to be fed later to the child.[23] Breast-pumping breaks enable mothers to maintain a good supply of breastmilk. A breastfeeding mother invests time and energy to provide food and care for her child. This is rewarding but also challenging. Working mothers encounter many problems with breastfeeding once they return to work. Employers may not be supportive of breastfeeding if they are unaware of the benefits or feel uncomfortable with the topic.[24] Our study revealed that mothers working in the clean room had more difficulties using the breast-pumping breaks than those at the office worksite, suggesting that an inconvenient working environment is an important barrier to taking breast-pumping breaks among working mothers because clean room workers needed time to take off and put on their clean room suits. Milk expression, in particular, becomes more difficult when women are under stress or are inconvenienced. Managerial attitudes toward this practice likely influence employees' perceptions of workplace breastfeeding support.[25] A working mother may not perceive her work climate to be supportive of breastfeeding owing to both the company's policies and the attitudes that the employer holds toward breastfeeding support.[5] In our study, 32.5% of employed mothers reported feeling embarrassed about taking breast-pumping breaks, and 51.1% felt that taking breast-pumping breaks would

Table 4. Association Between Intention to Use Breast-Pumping Breaks and Predictors Among Employed Mothers by Multiple Logistic Regression Analysis

Variable	*Intention to use breast-pumping breaks*	
	OR (95% CI)	p *value*
Employee characteristics		
Age (≥30 years vs. <30 years)	0.98 (0.63–1.52)	0.9862
Education (≥college vs. ≤high school)	2.33 (1.48–3.73)	0.0003
Husband's education (≥college vs. ≤high school)	1.25 (0.79–1.98)	0.3503
Worksite (office vs. clean room)	1.51 (1.02–2.32)	0.0200
Shift work (no vs. yes)	1.52 (0.99–2.36)	0.0514
Employees' perceived breastfeeding-friendly support		
Awareness of lactation room (yes vs. no)	2.27 (0.64–11.00)	0.2408
Awareness of breast-pumping breaks (yes vs. no)	4.70 (2.90–7.88)	<0.0001
Provide a lactation consultant (yes vs. no)	0.97 (0.67–1.42)	0.8207
Having a guilty feeling when using breast-pumping breaks (yes vs. no)	0.81 (0.54–1.21)	0.3148
Colleagues encourage breast-pumping breaks (yes vs. no)	1.76 (1.01–3.13)	0.0500
Supervisor encourages breast-pumping breaks (yes vs. no)	1.47 (0.86–2.51)	0.1522
Environmental health nurses encourage breast-pumping breaks (yes vs. no)	1.16 (0.68–1.95)	0.5762
Two breast-pumping breaks can reduce a working mother's efficiency (yes vs. no)	0.55 (0.37–0.82)	0.0031
Using breast-pumping breaks will influence a supervisor's evaluation of my performance (yes vs. no)	1.07 (0.71–1.59)	0.7470
Benefit of breastfeeding		
Awareness of benefits of breastfeeding (increments)	1.08 (1.02–1.12)	0.0050

CI, confidence interval; OR, odds ratio.

reduce their working efficiency. In addition, 45.2% thought they would receive poor evaluations by their supervisors if they took advantage of breast-pumping breaks. Based on our data, the attitude about breastfeeding in the workplace reflects misunderstanding.

In this study, 88.8% (635 of 715) initiated breastfeeding at the beginning of maternity leave, but the continuing breastfeeding rate rapidly decreased after returning to work (49.8% [356 subjects] 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. We examined the association between breastfeeding during maternity leave and use of breast-pumping breaks. In this study, we did not collect detailed information regarding the degree of breastfeeding during maternity leave (exclusive, mostly, partially, or infrequently), and participants were only asked, "Did you continue to breastfeed after returning to work (yes/no)?" Because our assessment of breastfeeding during maternity leave adopted a dichotomized classification, which was simplistic, the dataset of mothers who did not breastfeed during maternity leave but still used breast-pumping breaks after returning to work was too small ($n = 2$), which might have biased the results. Hence, predictors of breastfeeding during maternity leave were not included in the multiple logistic regressions. This is important, however, because the degree of breastfeeding prior to return to work may have an impact on break utilization, and it is a factor over which the employer may have very little control. We did examined the relationship in univariate analysis and found that breastfeeding during maternity leave was strongly associated with the use of breast-pumping breaks after returning to work (OR 28.5, $p < 0.0001$). The result may enrich our understanding of the role of breastfeeding during maternity leave and break utilization.

A supportive attitude from employers, supervisors, and coworkers can decrease the stress of balancing a job with breastfeeding.[21] The findings of our study are consistent with those of a previous report and revealed that encouragement by colleagues (OR 1.76) can help employed mothers take advantage of breast-pumping breaks after returning to work. Employee support of breastfeeding is generally a low-cost intervention for employers that involves minimal workplace disruption.[26] Previous studies have mentioned[11,13,18] potential benefits for employers that support breastfeeding, including lower employee absenteeism rates due to improved child health, improved employer–employee relations, greater employee loyalty, improved company image, higher job productivity, and a healthier workforce for the future. According to a recent Cochrane review,[27] however, no (randomized or quasi-randomized) trials have evaluated the effectiveness of workplace interventions for promoting breastfeeding among women returning to work after the birth of their child. The impact of such interventions on process outcomes (pertinent to employees and employers) for employed women is also unknown. Further etiological or randomized studies to clarify the mechanism are needed.

In our study, 74.7% of working mothers were aware of the breast-pumping break policy, but only 36.2% took advantage of the two breast-pumping breaks policy. Perhaps it is not enough for employers to provide lactation space; employers must also present a positive attitude toward their pregnant employees, including regular breastfeeding consultant education or matching a new mother with a mother who successfully combined breastfeeding with work to establish a mentoring

relationship and share practical advice.[17] The occupational health nurse can assist this relationship. It may be helpful to re-educate employers with information about breastfeeding, specifically the cost savings to both the employees and employers.

A previous study suggested that breastfeeding education and access to a lactation consultant may improve a woman's chances of starting and continuing to breastfeed her newborn.[28] Employed mothers in our study had some understanding about the benefits of breastfeeding, but there remained a knowledge gap about more specific health benefits. Employed mothers have higher awareness about the basic benefits of breastfeeding (e.g., increased calorie burning effects [Item 1], promotion of involution of the uterus from increased contractions [Item 2], greater perceived bonding with the infant [Item 5], a sense that the mother is doing something for her infant by breast pumping at work [Item 6], and economic incentive [Item 7]). Education about other health benefits is required (e.g., breastfeeding significantly reduces the incidence, severity, and duration of common illness [diarrhea, respiratory infections] among newborns [Item 9], enhances oral development [Item 10], and makes mothers more productive at work because they miss fewer days [Item 13]). A study of female university students in Kuwait[29] explored their knowledge and misconceptions of breastfeeding and found that misconceptions were common; hence, efforts should be made to correct common misconceptions on breastfeeding and increase the support of breastfeeding in public places. Another study[30] examined the impact of knowledge and social influence on adolescents' breastfeeding beliefs and intentions. These data revealed that knowledge about the health benefits of breastfeeding was generally poor and that greater knowledge and more positive beliefs are important predictors of future intentions to breastfeed among adolescents. The findings of the present study were consistent with these previous results indicating that increased awareness of the benefits of breastfeeding was a significant predictor of the use of breast-pumping breaks after returning to work (OR 1.08). Prenatal education and breastfeeding education programs that focus on methods and long-term benefits of breastfeeding are important for the employed mother. Educational programs that highlight the benefits of breastfeeding should be provided, including the sharing of practical advice based on the experience of a mentor or coworker. In addition, we found an association between a high level of education and the use breast-pumping breaks. The findings of another study[31] exploring the breastfeeding intention of female physicians suggested that a mother's education influences their breastfeeding duration and that their intentions and knowledge correlated with their breastfeeding initiation practices.

Conclusions

There are some limitations to the present study. First, this study was cross-sectional in design, allowing only for the evaluation of association, 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 nonresponse was inevitable. Moreover, in this study, we adopted two factors of "feelings of embarrassment" and" perception of inefficiency" to be proxies for workplace support. This may be unsuitable, however, as many mothers feel embarrassed about breastfeeding, irrespective of their employment status or workplace support, and it could be argued that "perception of inefficiency" may have less to do with absence of workplace support than with preconceptions about breastfeeding that some women take into the workplace with them. Nevertheless, higher education, non–clean room worksite, awareness of breast-pumping breaks, encouragement by colleagues to use breast-pumping breaks, and more awareness of the benefits of breastfeeding were significant predictors of the use of breast-pumping breaks after returning to work, whereas a mother's perception of inefficiency when using breast-pumping breaks reduced the use of breast-pumping breaks. The study finds an association between an appreciation of the benefits provided by the employer and the likelihood of increased usage of breastfeeding breaks. Workplaces and employers can help employed mothers to understand the benefit of breastfeeding, which may increase the intention of the mother to take breast-pumping breaks after returning to work.

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Disclosure Statement

No competing financial interests exist.

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