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SPECIAL FEATURES: HEALTH POLICY

Maternity Leave Length and Workplace Policies' Impact on the Sustainment of Breastfeeding: Global Perspectives

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ABSTRACT ***Background:*** Breastfeeding is a global initiative of the World Health Organization and the U.S. domestic health agenda, Healthy People 2020; both recommend exclusive breastfeeding, defined as providing breast milk only via breast or bottle, through the first 6 months of an infant's life. Previous literature has shown the correlation between socioeconomic status and breastfeeding, with higher maternal education and income as predictors of sustained breastfeeding. This same population of women is more likely to be employed outside the home. ***Methods:*** PubMed and the Cochrane Database of Systematic Reviews were searched using inclusion and exclusion criteria to identify the effect of maternity leave length and workplace policies on the sustainment of breastfeeding for employed mothers. ***Results:*** Common facilitators to sustainment of breastfeeding included longer length of maternity leave as well as adequate time and space for the pumping of breast milk once the mother returned to the workplace. Barriers included inconsistency in policy and the lack of enforcement of policies in different countries. ***Conclusions:*** There is a lack of consistency globally on maternity leave length and workplace policy as determinants of sustained breastfeeding for employed mothers. A consistent approach is needed to achieve the goal of exclusive breastfeeding for infants.

Key words: breast feeding, parental leave, policy, workplace.

Breastfeeding continues to be a global initiative of both the World Health Organization (WHO) and Healthy People 2020 (Unites States Breastfeeding Committee, 2008–2013; World Health Organization, 2003). Sustained breastfeeding for infants has tremendous health advantages, including decreased risk of sudden infant death syndrome, asthma, diabetes, and obesity (Ip et al., 2007). The WHO recommends infants be exclusively breastfed, defined as providing breast milk only via breast or bottle, for the first 6 months of life and continue to breastfeed with the addition of other foods through the first 2 years of life. A prerequisite to the implementation of these recommendations is the social and nutritional support available to lactating women. However, biological and social restraints in different geographical settings exist for achieving the goal of exclusive breastfeeding for the first 6 months of life. The WHO routinely collects information per country on the percentage of women that breastfeed for the first 6 months with the goal to create comparisons both between and within countries and regions. This provides a readily accessible database for use by policymakers, researchers, health administrators, and other health leaders. The current goal established by WHO is to increase the rate of breastfeeding in the first 6 months of life up to at least 50%. Globally, only 38% of infants aged 0–6 months are exclusively breastfed. Such suboptimal feeding practices

contribute to 11.6% of the overall childhood mortality in children fewer than 5 years of age (World Health Organization, 2015).

In the United States, one of the Healthy People 2020 goals is to increase the number of women who initiate breastfeeding for their newborns from 76% to 81.9%. The ultimate goal is to increase the percentage of women exclusively breastfeeding at 6 months of age from 16.4% to 25.5% (Unites States Breastfeeding Committee, 2008–2013). An additional Healthy People 2020 target is to increase the percentage of employers with worksite lactation programs to 38%; however, baseline rates are not available for these programs (Centers for Disease Control and Prevention, 2013a).

Previous research has demonstrated the correlation between socioeconomic status and breastfeeding, with higher maternal education and income as predictors of breastfeeding sustainment (Pineda, 2011; Skafida, 2009). This same population of women is more likely to be employed outside the home. Both upper- and middle-class women are faced with the conflict between employment and sustained breastfeeding and national policies vary greatly by country (Baker & Milligan, 2008; Ogbuanu, Glover, Probst, Liu, & Hussey, 2011; Skafida, 2012). The purpose of this paper was to review some of the relevant research from various countries about the impact of public and workplace policies, particularly maternity leave, on sustained breastfeeding in employed mothers. Through review of this literature the facilitators and barriers for sustaining lactation for employed mothers will be explored.

Methods

PubMed and the Cochrane Database of Systematic Reviews were searched for articles that met search term criteria. Search terms included workplace, policy, parental leave, AND breastfeeding. The search was limited to studies translated into English and to human studies published from January 2005 to December 2015. Inclusion criteria included research studies, either retrospective or prospective, that either described or showed an association between workplace policy or maternity leave and breastfeeding sustainment. To be included studies needed to use either workplace policy or maternity leave as the independent variable with breastfeeding duration as the outcome of interest. Articles were excluded if they were opinion articles, editorials, or previously appraised reviews of the literature. Of the 35 records reviewed, 21 were excluded that did not meet inclusion criteria. A total of 14 records were selected for review.

Results

Maternity leave length

A total of six studies met inclusion criteria to evaluate the correlation between maternity leave length and duration of breastfeeding and reported outcomes from Scotland, Iran, the United States, and Canada (Table 1). One study per country was reviewed with the exception of the United States with three eligible studies. National policies on maternity leave length that facilitate breastfeeding vary greatly by country, as does research on the impact of these policies on breastfeeding duration (Baker & Milligan, 2008; Ogbuanu et al., 2011; Skafida, 2012). Baker and Milligan (2008) studied the impact of length of maternity leave on breastfeeding duration before and after significant reform to the Canadian Employment Insurance program that governs laws related to maternity leave. Prior to December 31, 2000, leave entitlement was 25 weeks of paid employment benefit and after this date, another 25 weeks was added. The change in leave entitlement showed that mothers who maintained exclusive breastfeeding for 6 months increased by nearly 40%.

In 2005, Scotland became the first country to make breastfeeding a legally enforceable right (The Scottish Parliament, 2005). The United Kingdom and Scotland mandated maternity pay for 6 weeks at 90% of average salary and then at a flat rate of £124.88/week ($185.77 U.S. dollars) for the following 33 weeks. Skafida (2012) explored the impact of Scotland's employment maternity leave on breastfeeding duration, controlling for known predictors of breastfeeding duration, maternal social class, and education in the analysis. The results suggested that employment was negatively associated with breastfeeding duration and mothers who took longer maternity leaves breastfed for significantly longer periods of time. Mothers who took between 1 and 2 months of maternity leave were more likely to cease breastfeeding than those who took more than 2 months of leave.

TABLE 1. *Characteristics of Included Papers on Maternity Leave Length and Breastfeeding Duration*

Author (year)	Country	Study design	Results
Baker and Milligan (2008)	Canada	Reviewed national database pre- and postpolicy reform/logistic regression	Breastfeeding increases one third per month with each additional month not at work ($p < .05$)
Skafida (2012)	Scotland	Multivariate analysis of national survey data; Assessed relationship between employment, maternity leave, and breastfeeding duration	Maternity leave positively associated with breastfeeding duration after controlling for confounders ($p < .05$)
Ahmadi and Moosavi (2013)	Iran	Descriptive study of 212 mothers using survey data of breastfeeding mothers who have returned to work and impact of occupational characteristics of the workplace	Maternity leave less than 6 months resulted in a significant increase in formula use over those with maternity leaves greater than 6 months ($p < .05$)
Ogbuanu et al. (2011)	United States	Survey of 6150 mothers and measured association between maternity leave length and breastfeeding duration by multiple logistic regression analysis	Women returning to work at ≥13 weeks had highest proportion of breastfeeding >3 months; those returning within 1–6 weeks had the lowest proportion ($p = .01$)
Mirkovic et al. (2014)	United States	Multivariate logistic regression to assess relationship between maternity leave length and intention to breastfeed at least 3 months	Odds of not meeting intention to breastfeed at least 3 months were mothers who returned to work full time before 3 months (OR = 2.25; 95% confidence interval)
Huang and Yang (2015)	United States	Compared changes in breastfeeding practices before and after state mandated paid family leave in California. Data from existing database; analyzed through linear regression	Reported an increase of 3–5 percentage points for exclusive breastfeeding through first 3 and 6 months; increase 10–20 percentage points through 9 months

In Iran, the executive mandate of the Law for Promotion of Breastfeeding states that the minimum maternity leave for women employed in government and private sectors is 6 months (Ahmadi & Moosavi, 2013). However, the law is not consistently applied and a recent study of 212 Iranian mothers found that 22.6% were not granted their full leave. There was a significant decrease in breastfeeding among mothers who had less than 6 months of maternity leave.

In the Unites States, paid maternity leave is not mandated (Eichner, 2008). The Family and Medical Leave Act (FMLA) of 1993 allow employees to have a maximum of 12 weeks maternity leave with guaranteed securement of employment. However, this law applies to companies with greater than 50 employees (Guthrie & Roth, 1999), so that only about 50% of U.S. workers are able to even have a guaranteed job waiting for them at the end of their leave (United States Commission on Family and Medical Leave, 1996). In a retrospective study of U.S. mothers, breastfeeding initiation and sustainment were positively correlated with maternity leave, that is, women who had greater than or equal to 13 weeks of maternity leave had the highest rates of initiation; women who had not yet returned to work at 9 months were most likely to be breastfeeding beyond 6 months (Ogbuanu et al., 2011). Women returning to work after 13 weeks had higher breastfeeding rates than women who returned within 1–6 weeks, the group with the lowest proportion. Another recent study evaluated 1,172 U.S. mothers' breastfeeding intention and found 28.8% did not meet their intention. Those returning to work within 3 months after giving birth were less likely to meet their intention (Mirkovic, Perrine, Scanlon, & Grummer-Strawn, 2014).

In 2004, California was the first U.S. state to implement a paid family leave (PFL) program which grants up to 6 weeks of partially paid but not job-protected leave to most Californians caring for a new child or sick relative (Appelbaum & Milkman, 2011). A subsequent study evaluated the effect of PFL on breastfeeding rates at 3, 6, and 9 months

post-implementation (Huang & Yang, 2015). An association was found between the enactment of the PFL and subsequent rates of breastfeeding sustainment; an increase of 3–5 percentage points in exclusive breastfeeding rates for the first 6 months and an increase of 10–20 percentage points through 9 months were reported.

Workplace policies

Equally important as policies on length of maternity leave are workplace policies for mothers returning to work (Abdulloeva & Eyler, 2013; Ahmadi & Moosavi, 2013; Atabay et al., 2015). Eight studies met inclusion criteria and were evaluated for this review and included information from the United States, Taiwan, Pakistan, Indonesia, and the Philippines (Table 2). Three studies from the United Sates and one study from each of the other countries were reviewed. An additional survey describing legislation from 193 countries was also included. Workplace policies that can facilitate or inhibit breastfeeding include the need for additional breaks, private location for breast milk expression, and an employer's overall support (Abdulloeva & Eyler, 2013). From an international perspective, research conducted by Atabay et al. (2015) examined how breastfeeding breaks had been legalized globally between the years 1995 and 2014. In 1995, 63% of countries surveyed had a national policy guaranteeing breastfeeding breaks; this number had improved slightly to 71% by 2014. To date, 51 countries have no form of legislation for breastfeeding breaks with East Asia, Pacific, and the Americas having the greatest share of countries with no policy about such breaks.

In Pakistan, one of the major causes of mortality for children under 5 years of age is malnutrition. The country has seen a gradual decline in breastfeeding rates for the past two decades, with early breastfeeding cessation thought to contribute to this disparity. The Maternal Benefit Ordinance in Pakistan entitles working women paid maternity leave for 12 weeks; however, most workplaces do not follow the policy and the policy is for 6 weeks prior to birth and 6 weeks after birth thus shortening the time frame for breastfeeding support (Bhutta & Hyder, 2007). Pakistan has no workplace policies guaranteeing additional breaks for working mothers. A recent study among urban professional women in Pakistan explored their experiences with paid employment and breastfeeding (Hirani & Karmaliani, 2013). Participants described support from coworkers, physical facilities, job flexibility, and mother friendly policies as factors that would support sustained breastfeeding; limitations included a lack of child-care centers and places for milk expression or storage. Discouragement and criticism from coworkers were reported as the largest barriers to workplace sustainment of breastfeeding.

In Taiwan, the law guarantees that employers provide 8 weeks of maternity leave but breastfeeding friendly workplace policies are still new to this country, with almost 39% of mothers discontinuing breastfeeding within 1 month after returning to work (Tsai, 2013). Even though over 98% of the mothers in the study were aware of the breastfeeding friendly policies only 36% took advantage of the two breaks that were allowed. A retrospective study conducted among mothers employed in one Taiwanese manufacturing plant found mothers were provided private locations for breastfeeding and allowed two 30-min breastfeeding breaks during the day (Tsai, 2013). A workplace policy that increased sustained breastfeeding was the provision of a dedicated space for breastfeeding. The researchers speculated that employer attitude may also play a role in the willingness of the employee to avail themselves to the workplace policy.

The importance of employer communication as a determinant of the actual use of workplace breastfeeding policies by employed mothers was emphasized in a study by Anderson et al. (2015). In this U.S. study, employed mothers felt interpersonal communication was more effective than written notices about breastfeeding policies. Interpersonal communication was more dynamic and allowed questions to be asked and ideas clarified.

To evaluate the effectiveness of workplace policies that support breastfeeding, the WHO surveyed their staff in their Western Pacific offices on how employers could better support breastfeeding practices (Iellamo, Sobel, & Engelhardt, 2015). They found that WHO employees faced obstacles similar to those of other employed mothers. The women's recommendations included prenatal and postpartum breastfeeding counseling services to address common problems, a private room with a refrigerator for breast milk storage, peer group support, and flexibility to either travel home to nurse or allow the infant to be brought to the worksite for feedings.

TABLE 2. *Characteristics of Included Papers on Workplace Policies and Breastfeeding Duration*

Author	Country	Study design	Results
Abdulloeva & Eyler (2013)	United States	Policies for state employees on breastfeeding and lactation support and assessed after enactment of Federal law (Affordable Care Act of 2010)	Out of 50 states 11 had detailed lactation policies; no consistency in how break time is paid or amount of time needed to breastfeed
Atabay et al. (2015)	193 countries	Legislation regarding guaranteed breastfeeding breaks globally was collected and analyzed	Of the 193 countries surveyed (26.7%) did not guarantee breaks; 25.1% provided neither paid maternal leave or breaks
Hirani and Karmaliani (2013)	Pakistan	Described the experiences of urban professional women who are breastfeeding and employed	Facilitators and barriers were related to maternal commitment, social support and workplace support
Tsai (2013)	Taiwan	Survey administered to 715 working mothers in a manufacturing plant to assess predictors of continued breastfeeding	Higher education level (OR = 2.66); lower workload (OR = 2.66); lactation room (OR = 2.38); pump breaks (OR = 61.6); encouragement from colleagues (OR = 2.78): and supervisors (OR = 2.44) to take pump breaks all significant predictors for breastfeeding greater than 6 months
Anderson et al. (2015)	United States	Conducted three focus groups with 23 business Representatives from rural city in the Midwest to describe interpersonal communication related to workplace breastfeeding support	Interpersonal communication may be more important than written communication; age, sex, and power dynamics may be a barrier; positive interpersonal messages may increase breastfeeding support
Kozhimannil et al. (2016)	United States	Survey of over 500 working women from *Listening to Mothers III database*	Women with adequate break time and private space 2.3 times (95% CI, 1.03–4.95) to be exclusively breastfeeding at 6 months
Basrowi et al. (2015)	Indonesia	Cross-sectional study in five workplaces (n = 186); observational data and questionnaire	A workplace dedicated breastfeeding space increased exclusive breastfeeding (OR = 2.74; 95% CI, 1.34–5.64); $p < .05$
Iellamo et al. (2015)	Philippines	Online survey of employees of the WHO offices of the Western Pacific to assess how the worksite could better support breastfeeding (n = 32)	Returning to work (44%) and not having of the enough milk (17%) most reported reasons for discontinuing breastfeeding; Of the sample (32%) recommended having a private room with chair, table, outlet, and refrigerator to support lactation.

In the Unites States, the Affordable Care Act of 2010 (ACA) requires employees with more than 50 employees to provide break times for nursing mothers for 1 year after birth as well as a private location other than a bathroom for milk expression (United States Department of Labor, n.d.). Some state laws enacted prior to this legislation conflict with the ACA. An example of the inconsistency between state and federal laws is the requirement in Indiana and Oregon because in those states the law applies to companies with more than 25 employees (Abdulloeva & Eyler, 2013). In addition, while the federal law only requires break times up to 1 year, Oregon's policy allows for 18 months, Colorado's for 2 years and New York guarantees this provision for 3 years. Despite passage of the access to workplace accommodations to support breastfeeding, a recent survey of over 500 employed women in the United States reported that only 40% of the women had access to both break time and private space (Kozhimannil, Jou, Gjerdingen, & McGovern, 2016). Those employed women

with adequate break time and space were 2.3 times as likely to breastfeed exclusively at 6 months. A similar study of Indonesian employed women had similar results. They were 2.7 times more likely to be exclusively breastfeeding at 6 months with a dedicated space for breastfeeding (Basrowi, Sulistomo, Adi, & Vandenplas, 2015).

Research in the Unites States has also been conducted on specific barriers that minority populations, such as African-Americans or workers in low-wage jobs may experience around workplace support for breastfeeding (Johnson, Kirk, & Muzik, 2015). Focus groups were conducted with African-American women in low-income jobs in the Midwest to explore perceptions of the mothers regarding workplace support. Participants perceived their workplace as nonsupportive of breastfeeding and felt that paid maternity leave would decrease the stress associated with working and breastfeeding. Many of the mothers were in low-paying shift work jobs and worried that asking for additional breaks could jeopardize their employment. These study participants indicated that increased education and peer support with breastfeeding was needed for African-American mothers in the workplace. In particular, education for employers was essential to create a breastfeeding friendly workplace (Johnson et al., 2015). The women in this survey also believed they would benefit from African-American role models who are breastfeeding; whether a work colleague or other health care professional.

Facilitators and barriers for employed mothers

Through review of this literature, common facilitators and barriers to support employed mothers with breastfeeding sustainment were identified. The longer the maternity leave length, the more likely a mother was able to continue breastfeeding. Paid maternity leave also had an added benefit as well as duration of maternity leave. Most studies where maternity leave length was greater than 12 weeks had a higher percentage of women maintaining breastfeeding, whereas maternity leave lengths between 1 and 6 weeks were identified as a barrier to continued breastfeeding. The studies reviewed on maternity leave length reveal a strong association and even prediction that shorter maternity leave lengths result in statistically significant decreases in the duration of breastfeeding. Four of the six studies reviewed developed logistic regression models that could predict, based on maternity leave length, how long a mother might sustain breastfeeding. The remaining studies reviewed were either descriptive or correlational in design but still showed a statistically significant difference.

Equally important is the impact on national policies that support the employed mother who is breastfeeding such as the provision of guaranteed breaks and a private space for breastfeeding. Other important workplace facilitators include both coworker and supervisor attitude toward the breastfeeding mothers. One common barrier identified is that although national policy may exist, it is not often enforced and there are no ramifications to the employer.

Most of the studies reviewed were descriptive in design. Only three survey studies reported any association with potential for prediction when evaluating workplace policy (Basrowi et al., 2015; Kozhimannil et al., 2016; Tsai, 2013). All three studies reviewed found that women were twice as likely to breastfeed when there was a private space for lactation. One study found pump breaks resulted in women being twice as likely to breastfeed, whereas a subsequent study found women to be six times as likely to breastfeed with guaranteed pump breaks (Kozhimannil et al., 2016; Tsai, 2013). Workplace policies that support lactation by providing a private space, guaranteed breaks as well as employer and coworker support were consistent themes in all studies reviewed.

Discussion

This review reveals several important points regarding sustainment of breastfeeding for the employed mother. There is an overall lack of consistency globally on how maternity leave length and workplace policies are defined (Abdulloeva & Eyler, 2013). There is wide disparity on the length of maternity leave established per country (Ahmadi & Moosavi, 2013; Ogbuanu et al., 2011; Skafida, 2012). Although the research is demonstrating longer is better, the number of weeks that is adequate to support the WHO recommendation of exclusive breastfeeding for 6 months has yet to be defined or researched. Through this review, one could interpret that greater than 13 weeks should be the minimum but we have yet to determine the

maximum number of weeks to ensure sustainment. The research design in many of the studies used logistic regression with statistically significant results to show that longer maternity leave lengths are predictive of breastfeeding sustainment (Table 1). This should be used as the basis for further research to determine the precise number of weeks needed to ensure exclusive breastfeeding until the infant is 6 months of age.

There is also general variability on workplace policies and how they are enforced (Abdulloeva & Eyler, 2013; Atabay et al., 2015). The review should assist employers in knowing that adequate break times for pumping, a private place to pump, and coworker and supervisor support are essential (Figure 1). However, additional studies showed that women, especially in lower paid jobs, do not take advantage of workplace policies for fear of reprisals (Hirani & Karmaliani, 2013; Tsai, 2013). Once again research designs have been implemented that have predicted how the break time, space, and employer and coworker attitude influence the ability of the employed mother to sustain breastfeeding. In addition to the establishment of workplace policy, there is also inconsistency of enforcement with policy. There are no ramifications for the employer who fails to provide the needed support in the workplace for breastfeeding sustainment. Another important factor in breastfeeding sustainment is paid maternity leave. There are few countries that will pay all of a women's salary for the duration of their leave (Baker & Milligan, 2008). If the maximum number of weeks to sustain lactation was consistent, employers could better plan to be able to support employed women financially while on maternity leave.

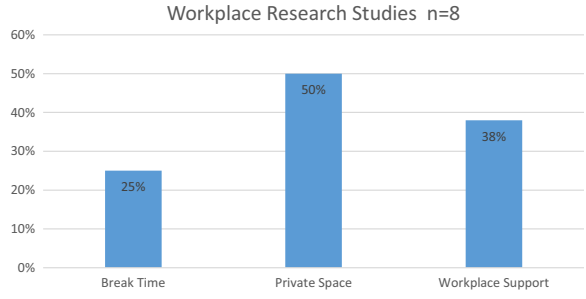

Figure 1. Percentage of Research Studies Reviewed ($n = 8$) Citing Break Time, Private Space, or Coworker Support as Key Determinants of Sustained Breastfeeding in the Workplace [Color figure can be viewed at wileyonlinelibrary.com]

Based on the research reviewed, there should be a call for international recommendations on length of maternity leave and community-based and workplace supports for breastfeeding. The CDC has developed a strategy to support breastfeeding in the workplace (Centers for Disease Control and Prevention, 2013b). Many of the recommendations focus upon corporate policy development that would ensure flexible scheduling to accommodate breastfeeding needs such as teleworking or part-time work. Other recommendations include the following adaptations for the work environment such as providing a private space, on-site child care, allowing babies at the workplace and professional lactation management service.

For papers reviewed on maternity leave length and breastfeeding duration, only four countries were represented; Canada, Scotland, Iran, and the United States. This is a relatively small proportion with many Asian and Eastern European countries being under-represented. The restriction to English language publication may have contributed to the lack of inclusion of more countries. There was also inconsistency in the studies reviewed for how long the outcome measure of breastfeeding sustainment was measured; from 6 weeks to 9 months. Further research should establish a consistent endpoint.

Much like the studies reviewed on maternity leave length, there was underrepresentation of European countries in this review. No studies meeting criteria were found for those studies in this review. The studies reviewed on workplace policies were mostly limited by their design and tests of correlation rather than causation. Randomized controlled trials are needed to establish which workplace policies result in statistically significant differences in breastfeeding duration for employed mothers. Studies focused on causation rather than association would lead to stronger evidence for the types of workplace policies that should be enacted consistently regardless of geographic location.

Despite the WHO and CDC recommendations for exclusive breastfeeding for 6 months after birth, varied practices exist throughout the world around national and workplace policies. While longer maternity leaves are a key determinant of breastfeeding sustainment, global policies on breastfeeding initiatives have yet to be enacted. Clearly, the

literature reveals longer paid maternity leave leads to better breastfeeding outcomes. When mothers return to work, breastfeeding policies are either inconsistent or fail to exist. More importantly, despite countries with laws to protect breastfeeding mothers, there are no ramifications to the employers if they fail to abide by the laws.

Coworker and employer support are important factors for sustaining breastfeeding. Women, especially in lower paying jobs, feel pressure to return to work and shorten their breaks for fear of reprisal from both coworkers and employers. Women should be supported by employers and coworkers for breastfeeding is a human right and an important determinant of the future health of children.

Further research directed at measuring the impact of worksite policies and lactation programs on outcomes for the breastfeeding mother and the employer should be initiated. In addition, research is needed to determine the adequate amount of time for paid maternity leave to achieve the WHO recommendations for exclusive breastfeeding. By performing this research, the adequate number of weeks paid maternity leave can be established. Research that describes the benefits for the employer for providing the paid leave as well as workplace accommodations could impact policy. Lastly, laws should be enforced and when violations occur, there must be a consequence to the employer. A call for international recommendations on length of maternity leave and community-based and workplace supports for breastfeeding should be enacted. A major determinant of breastfeeding behavior includes both the creation and enforcement of policies to support women at all levels of employment, income, and ethnicity to ensure sustainment of breastfeeding and to achieve healthy outcomes for the future generation of children.

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