

Work-Place Predictors of Duration of Breastfeeding among Female Physicians

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Objective To identify work-related predictors of breastfeeding duration among female physicians.

Study design Data on 238 children were obtained from 50 female physicians, whose main affiliation was with Johns Hopkins University (Baltimore, MD), and 80 female physicians, whose main affiliation was with the University of Florida (Gainesville, FL). We used a mixed linear model to determine which variables were significant predictors of breastfeeding duration when controlling for maternal demographics and taking into account the clustering of observations on study location and mothers.

Results Although female physicians intended to breastfeed 56% of the infants for at least 12 months and 97% of infants were breastfed at birth, only 34% of infants continued to receive breast milk at 12 months. Duration of lactation among female physicians correlated with the following work-related factors: (1) not having to make up missed call/work that occurred as result of pregnancy or maternity leave; (2) longer length of maternity leave; (3) sufficiency of time at work for milk expression; and (4) perceived level of support for breastfeeding efforts at work from colleagues, program director, or division/section chiefs.

Conclusion Our findings support the importance of work-related factors in breastfeeding maintenance among female physicians and suggest that a tailored intervention, providing time and institutional encouragement, might result in significant improvement in their breastfeeding duration. (*J Pediatr* 2013;163:1612-7).

Many health organizations recommend exclusive breastfeeding (BF) for the first 6 months of life, followed by continued BF for the first year and beyond.^{1,2} Exclusive BF is defined as the infant not receiving any nutrition except human milk (with the exception of vitamins and medications). These recommendations are based on extensive evidence of health benefits for both breastfed infants and BF mothers.³ Human milk has been shown to protect infants against otitis media, gastroenteritis, hospitalization for lower respiratory tract infections, atopic dermatitis, sudden infant death syndrome, necrotizing enterocolitis, type 1 diabetes mellitus, and childhood asthma and obesity.⁴⁻⁸ Maternal benefits include reduced risk of diabetes mellitus and malignancy of the breast and ovaries.³ With obesity and diabetes rates increasing, BF may be considered a cornerstone of preventive medicine. Furthermore, BF benefits extend beyond the mother and child dyad and include environmental, economic, and health care cost savings.⁹⁻¹¹ For example, some estimate that the US would save \$13 billion and prevent 911 deaths in 1 year if 90% of families' infants could be breastfed exclusively for 6 months.⁹

Despite excellent BF initiation rates, female physicians in the US, as a group, are at risk of premature BF cessation.¹²⁻¹⁶ Previous studies suggest that work-related factors not only influence female physicians' BF duration but also might have a stronger impact on their BF maintenance than do their intentions or education.^{17,18} Improving BF duration of female physicians requires identification of modifiable work-related and institutional factors that impact BF duration. To identify predictors of BF duration among female physicians, we analyzed data from 2 observational studies. This study expands on prior research to determine modifiable predictors of BF duration among female physicians. The main variable of interest was BF duration, defined as the age (in months) that infant was completely weaned from breast milk.

Methods

We conducted 2 cross-sectional survey studies at 2 academic institutions [Johns Hopkins University School of Medicine (JHU) and University of Florida College of Medicine (UF)] in the US, using a convenience sample of female physicians who volunteered to participate.^{17,18}

Criteria for participation were identical for both studies and included being a female physician (doctor of medicine or doctor of osteopathic medicine) and

BF	Breastfeeding
JHU	Johns Hopkins University School of Medicine
MW	Milk expression at work
PI	Principal investigator
UF	University of Florida College of Medicine

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having ≥ 1 biological child. Eligible participants were included whether they were in training (eg, resident or fellow) or had completed training (eg, faculty at academic site or community practice). Participants were included regardless of their infants' feeding methods (formula, breast milk, or combination). Although recruitment efforts only focused on female physicians affiliated with JHU and UF, we included female physicians not affiliated with either institution if they contacted us to express interest in the study and were otherwise eligible to participate.

JHU Study

The institutional review board at JHU approved the protocol for this study.¹⁷ The initial questionnaire was developed in 2008 after review of the instruments used in previous similar studies.^{12-15,19} The questionnaire was piloted among 20 female physicians who were not included in the subsequent studies. The final instrument contained 49 items and took approximately 15-30 minutes to complete. Participants were asked a series of questions regarding each of their children, including age, infant-feeding intention, whether the infant was breastfed, mother's goal for BF duration when infant was born, age at which infant first received any nutrition other than breast milk, age at which infant was weaned completely from breast milk, and work-related factors and other enablers and obstacles of BF. To assess availability of time for milk expression at work (MW), participants chose between "never," "occasionally," "sometimes," "often," and "always." Similarly, availability of worksite lactation facilities was assessed by asking each participant their frequency of "access to appropriate place to express milk." Participants were also asked to rate the support that they felt they received for their breastfeeding efforts while working from colleagues. If in training at the time of study, a participant was asked to rate the support that she felt she received for her breastfeeding efforts while working from her attending physicians and program director. If no longer in training at the time of study, a participant was asked to rate the support that she felt she received for her breastfeeding efforts while working from her division/section chief. Participants could choose "always opposed my efforts," "usually opposed my efforts," "neither supportive nor oppositional," "usually supportive," or "always supportive." When participants reported that they faced opposition of their BF efforts at work, they were asked to choose any of the following as reasons that might have influenced the opposition, "changes in the schedule," "perceived special favors," "lack of administrative support," "more work for others," or "other (please specify)."

Recruitment was initiated through an e-mail that contained information about the study and contact information for the principal investigator (PI). This e-mail was sent once to the head of the institution's Women's Task Force as well as residency program directors, with request for dissemination. The recruitment e-mail stated that the purpose of the study was to assess infant-feeding intentions and practices of female physicians and possible obstacles and enablers that affect their

BF success. The PI set up interviews with potential participants as they expressed interest in the study via e-mail or telephone. Fifty eligible interviews were conducted between February and August of 2009. Although every attempt was made to meet with all participants, only 29 interviews were performed in person. Due to time constraints and clinical responsibilities, 10 participants completed the interview via telephone. Eleven participants completed the paper questionnaire and were interviewed in person or on the telephone afterward to clarify and confirm their written responses. The PI conducted all the interviews (by telephone and in person).

UF Study

The institutional review board at UF approved the protocol for this study.¹⁸ Further survey items and response scales were developed in 2009 and incorporated into the JHU questionnaire mainly to assess BF advocacy of participants. This modified instrument contained 53 items and took approximately 20-30 minutes to complete. The recruitment e-mail was sent once in 2009 to residency and fellowship program directors and once in 2010 to the institution's listserv for housestaff and faculty. The PI set up interviews with potential participants as they responded to express interest in the study. All participants were interviewed in person between October 2009 and July 2011 by the PI.

Statistical Analyses

Data from the 2 institutional studies were merged using REDCap electronic data capture tools hosted at UF.²⁰ The primary outcomes were predictors of BFD. We used the R statistical software package (V.2.15.0; R Foundation for Statistical Computing, Vienna, Austria, 2012) to generate means, SDs, and frequencies of demographic variables in the data set and to conduct univariate tests. We used the infant as the unit of analysis for calculation of rates because infant-feeding practices of some multiparous participants varied with different offspring. All comparisons were performed at a 95% confidence interval.

We created a series of models, each with BF duration as the outcome variable. We transformed maternal specialty to a dichotomous variable by assigning it as surgical if associated mainly with procedures and labeled all other specialties as nonsurgical (**Table I**). Variables in the following categories were included as primary predictors: maternal demographics (eg, age at the time of study, stage of career at the time of study, number of biological children, location [JHU or UF], specialty [surgical or nonsurgical], and marital status), BF education (medical school and residency), child-related information (eg, birth year, age at the time of mother's participation in the study, maternal stage of career at the time of childbirth, BF duration goal, and maternal reasons for decision to breastfeed), and maternal work-related factors (eg, duration of maternity leave, duration of paid leave, maternity leave makeup, reasons for return to work, availability of worksite lactation facilities, availability of time for MW or BF at work, and support from colleagues).

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