

# PERSONAL ATTITUDES OR STRUCTURAL FACTORS? A CONTEXTUAL ANALYSIS OF BREASTFEEDING DURATION

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A personal attitudes model (i.e., infant feeding choices are based on personal attitudes primarily) and a structural factors model (i.e., feeding choices are shaped by the structural contexts of women's lives, as much as personal attitudes) of women's breastfeeding behavior were tested by surveying a longitudinal sample of 548 mostly European American women recruited for the Wisconsin Maternity Leave and Health Project. Personal attitudes (enjoyment of breastfeeding, gender-role attitudes, and work and family salience) accounted for half as much variance in breastfeeding duration for women who were employed outside the home compared to those who were not. For women employed outside the home, both structural variables (length of maternity leave and workplace flexibility) and personal attitudes predicted duration. These results have implications for how we construct the issue of women's breastfeeding decisions.

The American Academy of Pediatrics (1997) states that in most cases breastfeeding provides the optimal nutrition for infants, including increased general health and decreased risk for disease. According to this organization, breastfeeding also has health benefits for the mother and social benefits such as reduced health care costs and less parental absenteeism due to infant illness. The recommended period for breastfeeding varies, with the American Academy of Pediatrics (1997) recommending at least 12 months and the Healthy People 2010 initiative identifying as a goal increasing the proportion of mothers who breastfeed to 75% in the early postpartum period and to 50% up to 5 or 6 months postpartum (U.S. Department of Health and Human Services, 2000).

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Both dominant and feminist discourse constructs breastfeeding as a choice based on personal attitudes, yet this construction ignores the context of structural factors that, within industrialized countries, may expand or limit women's options (Galtry, 1997). The purpose of this study was to investigate women's infant feeding methods with the goal of comparing two models for how long women breastfeed. In particular, we investigated two models of women's breastfeeding behavior: a Personal Attitudes (PA) model and a Structural Factors (SF) model. A PA model suggests that women make their infant feeding choices based on their personal attitudes and desires and thus one would expect that personal attitudes would be the more important predictors of breastfeeding behavior. An SF model suggests that infant feeding method is as much a function of the structural contexts of women's lives as it is a function of personal attitudes and desires.

## FEMINIST PERSPECTIVES ON BREASTFEEDING

Breastfeeding has been neglected in feminist analyses, probably because breastfeeding poses significant dilemmas for feminists (Blum, 1993; Galtry, 1997; Laws, 2000). One dilemma derives from the issue of whether women and men should be treated equally (that is, identically) or differently (Blum, 1993; Galtry, 1997; although one might argue that equal treatment should include treatment according to one's needs). Reproductive behaviors, such as pregnancy, childbirth, and breastfeeding all pose a challenge to the concept of equal treatment espoused by U.S. feminists. However, compared with pregnancy, breastfeeding potentially covers a longer period of time and more greatly reduces

women's freedom of movement. Therefore, breastfeeding poses more of a challenge to the equality discourse. In fact, breastfeeding may serve as a barrier to equitable sharing of parenting (Laws, 2000). Therefore, attention to breastfeeding exacerbates the challenges in the equal treatment strategy of U.S. feminists.

Another dilemma for feminists is the question of whether to analyze breastfeeding as an individual/reproductive right or as an issue of domestic labor division (Laws, 2000). Sitting at the intersection of reproduction and domestic labor, breastfeeding could be considered childcare, yet it is biologically gender specific, as is pregnancy and childbirth. If breastfeeding is a reproductive issue, then an important goal would be to enact policy that ensures women's right to breastfeed, including adequate maternity leave and means for combining wage labor with breastfeeding (Galtry, 1997). If breastfeeding is a childcare issue, then the important goal would be to analyze how breastfeeding shapes domestic labor (Laws, 2000) and policy to encourage equity could be developed.

Breastfeeding also poses dilemmas connected with how feminists construct the body. The breastfeeding relationship is highly interdependent and this lack of autonomy for the mother conflicts with current constructions of motherhood and the workplace (Blum, 1993). Additionally, women have constructed breastfeeding both as a pleasurable embodied experience (e.g., Blum, 1993) and as a disgusting reminder of our animal nature (Morse & Bottorff, 1992).

The question addressed in this research, whether breastfeeding is a choice based on personal attitudes or a choice that is structurally influenced, fits within a construction of breastfeeding as a reproductive rights issue, rather than a childcare issue and does not address the question of whether women and men should be treated equally (and what "equally" means). However, we believe it is important to bear in mind the domestic labor implications, including assumptions about household characteristics and division of labor, in fully understanding infant feeding practices.

## MODELS OF INFANT FEEDING METHOD

### *Personal Attitudes Model*

Galtry (1997) argued that most analyses of breastfeeding assume that the infant feeding method used is a choice based on the attitudes of individual women, what we are calling the PA model. Research from this model typically examines the characteristics of women that are related to feeding methods. For example, Duckett et al. (1998) used the theory of planned behavior to investigate breastfeeding duration and found that intentions to breastfeed, attitudes toward breastfeeding, and perceived control all predicted breastfeeding duration. Such cognitive models have been useful in predicting breastfeeding intentions (Avery, Duckett, Dodgson, Savik, & Henley, 1998; Duckett et al., 1998; Humphreys, Thompson, & Miner, 1998; Richardson & Champion, 1992;

Wambach, 1997). They have been more mixed in their ability to predict breastfeeding duration and this may depend on the point at which variables are measured. Duckett et al., who collected five waves of data postnatally, found breastfeeding intentions to be the strongest predictor of duration. But Wambach (1997), who collected one wave of data prenatally and one wave 4 weeks postpartum, found breastfeeding intentions to be only weakly related to duration and no other attitudes predicted duration.

In addition to direct measures of breastfeeding attitudes, other variables related to breastfeeding duration, such as increased health-enhancing behaviors (Ford & Labbok, 1990; Pesa & Shelton, 1999) and gender-role identification (Barnes, Leggett, & Durham, 1993), are assumed to reflect women's personal attitudes toward infant feeding choices. For example, Barnes et al. (1993) presumed that women's endorsement of femininity traits on the Bem (1974) Sex Role Inventory (and presumed endorsement of a cultural connection between femininity and breastfeeding) would predict breastfeeding behavior. They did not find femininity scores related to breastfeeding, but participants who were undifferentiated were more likely to bottlefeed.

Variables that could represent structural factors are also usually investigated in terms of their effect on personal attitudes. For example, social support, which predicts feeding choices (see Arlotti, Cottrell, Lee, & Curtin, 1998; Littman, Medendorp, & Goldfarb, 1994; Morse & Harrison, 1992; Raj & Plichta, 1998; Sharma & Petosa, 1997), may structurally facilitate or limit breastfeeding, but the research on social support typically assumes that social support is important primarily in how it affects women's attitudes. For example, Raj and Plichta (1998) argue that social support affects "mother's beliefs about the advantages and disadvantages of infant feeding methods" through positive or negative interactions with members of their social network (p. 42). Particularly, social support from fathers in this review article was defined in terms of approval of breastfeeding, rather than structural support, such as redistribution of household tasks.

### *Structural Factors Model*

Galtry (1997) argued that feeding methods are as much a function of the structural conditions that expand or limit women's choices, as they are a function of women's attitudes alone. We are calling this model the SF model. From the perspective of this model, the duration of breastfeeding and women's intentions to breastfeed must be addressed through examination of the structural contexts of women's lives as much as women's attitudes and beliefs. For example, because few workplaces provide facilities for the breastfeeding mother, such as a clean, private space for breastmilk expression (Cohen & Mrtek, 1994), being employed may impose structural limitations to women's infant feeding choices. Other structural factors might include the physical health of the mother and infant, adequacy of diet, access

to breastfeeding information, material social support (e.g., redistribution of household/childcare tasks), and so on. In this paper, we have focused primarily on the workplace as a limiting structural factor.

There is substantial support for the notion that "employment is a threat to breastfeeding" (Duckett, 1992, p. 707) and employment may both influence personal attitudes and create structural barriers. Analysis of national survey data suggests that although breastfeeding by employed women increased from 1968 to 1986, the majority of working mothers do not breastfeed after returning to employment (Lindberg, 1996b). Returning to work early in the postnatal period is especially likely to shorten the duration of breastfeeding even when prenatal intentions are controlled (Kearney & Cronenwett, 1991). Part-time employment is associated with higher levels of breastfeeding initiation and duration compared to full-time employment (Auerbach & Guss, 1984; Fein & Roe, 1998). Expecting to work is related to intentions to breastfeed a shorter time (Kearney & Cronenwett, 1991; Lindberg, 1996a). Kearney and Cronenwett found that planning to work was more predictive of breastfeeding intentions than maternal age or education. Intentions themselves are likely to reflect a complex mix of personal attitudes and anticipation of the structural context of breastfeeding.

There is less research that examines the specific structural conditions of the work context that may contribute to the relationship of employment to infant feeding method, but research supports Galtry's (1997) assertion that adequate maternity leave to establish breastfeeding and the flexibility and facilities for pumping milk in the workplace are critical for sustaining breastfeeding. Lindberg (1996a) found that women are most likely to stop breastfeeding in the first month of employment and argued that this suggests that breastfeeding and being employed are mutually constraining. Kearney and Cronenwett's (1991) longitudinal data on highly motivated breastfeeding mothers suggests that returning to work prior to 2 months postpartum may make the problems associated with employment insurmountable. Auerbach and Guss (1984) concluded from their survey study of participants recruited via four national magazines that 16 weeks of leave give women sufficient time to overcome difficulties with breastfeeding and establish sufficient breast milk and skill to continue breastfeeding while in the labor force.

The American Academy of Pediatrics' (1997) Workgroup on Breastfeeding recommends that employers provide employed mothers the time and facilities for pumping breasts. Factors associated with structural support in the workplace and breastfeeding success are space, time, support of employer, and supportive gatekeepers (Bar-Yam, 1998; Cohen & Mrtek, 1994). Rates of breastfeeding in corporations that make this support available more closely match those of homemakers (Cohen & Mrtek, 1994). Similarly, Katcher and Lanese (1985) compared breastfeeding women who

had returned to work before and after institution of a program of support for breastfeeding, which included a lactation nurse, a private site for extracting milk, and furnishing an electric breast pump, facilities for washing equipment, and refrigeration for milk storage. They found longer duration of breastfeeding for those who participated in the support program.

### *Demographic Variables*

Other demographic variables that fit less clearly into either the PA or the SF model that have been found to be related to longer duration of breastfeeding include higher education and income (Barnes et al., 1993; Ford & Labbok, 1990; Richardson & Champion, 1992) and greater age of mother (Barnes et al., 1993; Richardson & Champion, 1992). These demographic variables may represent differences in attitudes but also may represent access to different structural supports. Women in professional and semiprofessional jobs are most likely to have adequate leave and support for breastfeeding on the job, as well as more power to shape their working environment and this may account for their higher levels of breastfeeding (Galtry, 1997). However, Auerbach and Guss (1984) found that type of occupation was unrelated to breastfeeding.

## THE CURRENT STUDY

The current study was conducted to compare the PA model and SF model of infant feeding method by examining the relationships of personal attitudes and structural factors to breastfeeding behavior in a longitudinal study of women surveyed during the second trimester of pregnancy and at 4 weeks, 4 months, and 1 year postpartum. The comparison of these models should be useful in furthering our understanding of breastfeeding behavior and should provide information to those who wish to advocate for breastfeeding and to those who make relevant policy decisions. The data were taken from the Wisconsin Maternity Leave and Health (WMLH) Project (Hyde, Klein, Essex, & Clark, 1995), a longitudinal study that followed 570 women beginning in the middle trimester of pregnancy through the first year after the birth of the child. The WMLH database allowed longitudinal correlation of multiple variables associated with the duration of breastfeeding, including employment, demographic variables, personal attitude measures, and structural variables.

The first goal of this study was to explore the relationships between employment, demographic variables (age, education, and occupational status), personal attitude variables (work and family salience, gender-role attitudes, and enjoyment of breastfeeding), and structural variables (adequate maternity leave and workplace flexibility) to how long women intended to breastfeed (intentions) and how long they actually breastfed (duration). We used both these outcome measures because although it is important to measure

actual behavior, the anticipation of consequences is likely to affect behavior as well (Bandura, 1986).

We expected that employment would be related to intending to breastfeed for less time and shorter duration of breastfeeding. Demographic variables, specifically, age, education, and occupational status, have all been shown to be related to increased breastfeeding behavior (e.g., Barnes et al., 1993; Richardson & Champion, 1992). We expected similar relationships in our study.

We used enjoyment of breastfeeding as a measure of personal attitudes toward breastfeeding and expected it would be related to longer duration and intentions based on the results of Duckett et al.'s (1998) study. Barnes et al. (1993) found gender-role identification to be related to breastfeeding behavior. Gender-role attitudes, rather than sex-role identity was measured in this study, so we did not have a basis for expectations regarding this variable. We added work and family salience as personal attitude measures of identification with work and family roles (Nevill & Super, 1986). High family salience should be related to increased breastfeeding behavior insofar as breastfeeding represents a commitment to the family. Because work salience is not antithetical to family salience (Barnett & Hyde, 2001), we expected work salience to be uncorrelated with breastfeeding intentions and duration.

To measure structural factors that might be related to breastfeeding behavior, we used length of maternity leave and the woman's perception of her job's flexibility. An adequate maternity leave allows breastfeeding to be well established prior to starting employment (Auerbach & Guss, 1984; Kearney & Cronenwitt, 1991). Auerbach and Guss reported 16 weeks as an adequate maternity leave, and Kearney and Cronenwitt reported 8 weeks as an adequate leave. We tested both possibilities to see which was more predictive of breastfeeding behavior in our sample. Workplace flexibility is important because the ability to control one's time allows for women to extract milk at missed feedings and otherwise firmly establish breastfeeding. Using women's perceptions of their workplace flexibility, we expected that more adequate maternity leave and higher workplace flexibility would be related to increased breastfeeding behavior.

The second goal of this study was to test whether duration of breastfeeding was better predicted by a PA model or an SF model of breastfeeding method. To test this, regression analyses were used, controlling first for demographic variables (age and education). We compared women who were employed outside the home to women who were not employed or who worked at home, presuming that outside employment imposes significant structural limitations. Then, for women employed outside the home, contributions of personal attitudes and structural variables to variance in breastfeeding duration were compared. If a PA model is supported, personal attitudes should predict breastfeeding duration in a similar manner regardless of employment status. If the SF model is supported, personal attitudes should

be stronger predictors of breastfeeding duration for women who are not employed than for women who are employed. Also, for women who are employed outside the home, structural variables should contribute additional variance in the duration of breastfeeding over and above the variance accounted for by the personal attitudes variables.

## Method

### Participants

Initially 570 women were recruited for the WMLH Project (Hyde et al., 1995). Families were recruited through private and hospital clinics, including those serving low-income populations. Criteria for inclusion in the WMLH Project included being over age 18, in the second trimester of pregnancy, living with the father (although not necessarily married), and at least one member of the couple working (see Hyde et al., 1995, for complete list of criteria). Efforts were made to recruit a diverse group by ethnicity and social class; however, some requirements of the study (e.g., living with father) may have reduced the diversity of the sample. Of patients approached by recruiters and eligible for the project, 75% agreed to participate.

Of this original sample, 548 were still in the study at one month postpartum and gave information on whether they had ever breastfed. They form the study sample for this research. For these participants, age ranged from 20 to 43 years old ( $M = 29.36$ ,  $SD = 4.35$ ,  $Mdn = 29.00$ ). Mothers' mean number of years of education was 15.02 ( $SD = 2.15$ , range 11 to 19 years,  $Mdn = 16.00$ ). Ninety-five percent of the women were married. Most of the women were European American (93%,  $N = 510$ ) and 2.4% were African American ( $N = 13$ ), 1.8% were Hispanic ( $N = 10$ ), 2% were Native American ( $N = 11$ ), and 0.7% were Asian American ( $N = 4$ ).

### Measures

*Demographics.* Participants reported their age, education, and occupational status during the second trimester of pregnancy. Occupational status was measured using the Bose Index (Bose, 1985). This index assigns prestige values to various occupations separately for each gender. In the total sample, scores ranged between 10 and 100 (the maximum possible). This variable was available for 458 women. Years of education and occupational status were used as indicators of socioeconomic status. Women also indicated at each measurement time whether they were "currently working for pay or profit" and whether they worked primarily outside the home.

*Breastfeeding, duration, and intentions.* At 4 weeks postpartum, women were asked whether they were currently breastfeeding and if they were not, they were asked if they had ever breastfed. At 1 year postpartum, women were asked whether they were currently breastfeeding and

if they were not, they were asked if they had ever breastfed. If they had breastfed at any time, they were asked, "How old was your baby when you stopped breastfeeding?" Duration was measured in weeks using this latter question. If a woman was still breastfeeding at 1 year postpartum, she was coded as 53 weeks for duration. This variable was missing for the 96 women who never breastfed and for an additional 18 who did not indicate at 1 year postpartum how long they breastfed.

For women who were breastfeeding at 4 weeks postpartum, intentions regarding the duration of breastfeeding were reported at 4 weeks postpartum or 4 months postpartum. Intentions were measured in weeks using the question "How old will your baby be when you plan to stop breastfeeding?" at both times. This variable was missing for those who never breastfed ( $N = 96$ ) and for women who had breastfed but were no longer doing so at 4 weeks postpartum ( $N = 79$ ). An additional 98 women breastfeeding at 4 weeks postpartum did not know how long they intended to breastfeed. For these women, an additional 29 indicated an intention at 4 months postpartum and so intentions at 4 months was used for these women. The intention variable was therefore available for 304 women.

*Enjoy breastfeeding.* At 4 weeks postpartum, women reported the extent to which they enjoyed breastfeeding at that time using the options: (a) a great deal, (b) quite a bit, (c) somewhat, (d) a little, and (e) not at all. If women had breastfed in the past but no longer were breastfeeding, they responded to a similar scale asking whether they had enjoyed breastfeeding. These scales were reverse-scored so that higher scores meant more enjoyment and were used as a single enjoyment measure. This variable was missing for two of the respondents who had ever breastfed.

*Family and work salience.* Family and work scales from Nevill and Super's (1986) Salience Inventory were completed prenatally to measure women's identification with work and family roles and activities. Each scale consists of the same 10 items, one set for home and family role and one set for work role. Respondents were asked to circle a number corresponding to how true each statement was of "your feelings about such work [home and family] activities" on a scale ranging from (1) *little or none* to (4) *a great deal*. Sample items for family and work salience, respectively, are: "It is important to me to be good in work activities" and "I am very much involved in home and family activities." Nevill and Super (1986) reported that alphas for high school, college, and adult samples were all above .82, and test-retest reliability in college students was .68 and .69 for work and family/home commitment scales, respectively. Concurrent validity was established through correlations of scales with self-ratings of actual participation in activities in adults for work ( $r = .65$ ) and family/home ( $r = .78$ ; Nevill & Super, 1986). Work salience was missing for two respondents and family salience was missing for one respondent.

*Gender-role attitudes.* Attitudes about gender roles were measured at 4 weeks postpartum using the Traditional-Egalitarian Sex Role Scale (Larson & Long, 1988). Respondents were asked to answer the 20 items according to their current opinion using a scale ranging from (1) *strongly agree* to (5) *strongly disagree*. The scores were averaged after reversing eight items so that high scores indicate egalitarian attitudes and agreement with such statements as "It is just as important to educate daughters as it is to educate sons." Low scores indicate traditional attitudes and agreement with such statements as "Ultimately a woman should submit to her husband's decisions." Psychometric analyses have indicated this scale has a split-half reliability of .91, is unidimensional, and correlates with general liberalism-conservatism ( $r = -.47$ ) and acceptance of rape myths ( $r = -.19$ ; Larson & Long, 1988). Gender-role attitudes scores were missing for 22 respondents.

*Length of maternity leave.* Total length of leave taken after childbirth in weeks was reported at 1 year postpartum for women who were employed at 1 year postpartum. This variable was missing for 3 of the 379 women employed at this time. Two separate splits were used for adequate maternity leave: one split at 8 weeks and one split at 16 weeks. For the first split, women were coded as 0 if their maternity leave was less than 8 weeks ( $N = 129$ ) and 1 if their maternity leave was greater than or equal to 8 weeks ( $N = 247$ ). For the second split, women were coded as 0 if their maternity leave length was less than 16 weeks ( $N = 311$ ) and 1 if their maternity leave was greater than or equal to 16 weeks ( $N = 65$ ).

*Perception of work flexibility.* Women's perceptions of work flexibility were assessed at 1 year postpartum by responses to items from scales developed by Barnett and others (Barnett & Marshall, 1989; Barnett et al., 1993) measuring rewards and concerns about work roles. Respondents were asked how much they felt "gratified or rewarded" by their job on three items: "flexible enough so you can respond to nonwork situations," "you can set your own work schedule," and "you have hours that fit your needs." Three parallel items assessed how much respondents felt bothered or concerned by their job: "you have little flexibility to respond to nonwork situations" and so on. The 4-point response scale had options of (1) *not at all*, (2) *somewhat*, (3) *considerably*, and (4) *extremely*. Items on the concerns scale were reverse-scored and the six items were averaged to form a single flexibility perceptions scale with higher scores indicating greater workplace flexibility. This combined scale had good internal consistency for the current sample ( $\alpha = .85$ ). Workplace flexibility data were available for 361 of the 379 respondents working at 1 year postpartum.

#### *Procedure*

Women were interviewed in their homes by a female interviewer at four times: the second trimester of pregnancy,

1 month after birth, 4 months after birth, and 12 months after birth. Additional data were collected via mail-out questionnaires at each of these times. At 4 months postpartum, 96.1% of those who completed interviews prenatally participated (about half the attrition rate was due to miscarriage or stillbirth). At 12 months postpartum, 95% of the original sample completed interviews. Klein, Hyde, Essex, & Clark (1998) reported no differences between the women completing the 1-year assessment and those who dropped out on age, education, family income, or work status. Participants were paid for their participation.

## Results

### Descriptive Statistics

A total of 82% ( $N = 452$ ) of women breastfed at some time. This is higher than the 64% of women in the U.S. who reported breastfeeding in the early postpartum period in 1998 and higher than the Healthy People (HP) 2010 goal of 75% (U.S. Department of Health and Human Services, 2000). At 6 months postpartum, 32% ( $N = 177$ ) of the total sample was breastfeeding, compared to the 1998 national figure of 29% and the HP 2010 goal of 50%. At 1 year postpartum, 12% ( $N = 64$ ) of the total sample was breastfeeding, compared to the 1998 national figure of 16% and the HP 2010 goal of 25%. The mean duration of breastfeeding was 20.93 weeks ( $SD = 18.28$ ,  $Mdn = 17.20$ ).

### Comparisons of Women Who Ever Versus Never Breastfed

MANOVAs were used to examine differences between those who had breastfed at some time (82.5%;  $N = 452$ ) and those who had never breastfed (17.5%;  $N = 96$ ) on the continuous variables. The first, comparing the groups on mothers' education, age, family salience, and work salience during the second trimester of pregnancy, and gender-role attitudes at 1 month postpartum, was significant, Pillai's  $F(5,517) = 6.45$ ,  $p < .001$ . Univariate tests showed that compared with women who had never breastfed, women who had breastfed had more education,  $M = 15.29$ ,  $SD = .10$  versus  $M = 13.96$ ,  $SD = .22$ ,  $F(1,521) = 30.64$ ,  $p < .001$ ; were older,  $M = 29.60$ ,  $SD = .21$  versus  $M = 28.48$ ,  $SD = .45$ ,  $F(1,521) = 5.136$ ,  $p = .02$ ; and had more egalitarian gender-role attitudes,  $M = 4.35$ ,  $SD = .02$  versus  $M = 4.22$ ,  $SD = .05$ ,  $F(1,521) = 5.096$ ,  $p = .02$ . There were no differences on family salience,  $F(1,521) = .815$ ,  $p = .37$  or work salience,  $F(1,521) = .330$ ,  $p = .57$ . The second MANOVA, comparing the groups on the work-related variables (Bose Index of occupational status prenatally and length of maternity leave and workplace flexibility at 1 year postpartum) was significant, Pillai's  $F(3,340) = 5.00$ ,  $p = .002$ . Univariate tests showed that the difference for occupational status was significant,  $F(1,342) = 13.83$ ,  $p < .001$ . Those who had ever breastfed had higher occupational status ( $M = 56.35$ ,  $SD = .96$ ) than those who had never breastfed ( $M = 47.90$ ,

$SD = 2.06$ ). There was no significant difference for length of maternity leave,  $F(1,342) = .48$ ,  $p = .49$ ; or for workplace flexibility at 1 year postpartum,  $F(1,342) = .27$ ,  $p = .60$ . There was also no relationship between working prior to childbirth and whether a woman ever breastfed,  $\chi^2(1) = .03$ ,  $p = .87$ .

### Zero-Order Relationships with Breastfeeding Initiation and Duration

Table 1 shows the mean duration of breastfeeding in weeks and how long women intended to breastfeed, and the demographic, personal attitudes, and structural variables and the zero-order correlations between these variables. There was a strong positive correlation between intentions and duration. Women who intended to breastfeed longer were older, enjoyed breastfeeding more, had longer maternity leave, greater workplace flexibility, and had less egalitarian gender-role attitudes, although the latter relationship was very weak. Occupational status, education, and work and family salience did not predict intentions. Women who breastfed longer were older, enjoyed breastfeeding more, and had less egalitarian gender-role attitudes. There were very weak positive relationships between duration and occupational status, education, family salience, and maternity leave length. Duration was unrelated to work salience or workplace flexibility. Because of the negative relationship between gender-role attitudes and duration and intention, an exploratory  $t$  test was conducted that showed women who were employed at 1 year postpartum had more egalitarian sex role attitudes ( $M = 4.38$ ,  $SD = .47$ ) than those who were not employed ( $M = 4.17$ ,  $SD = .58$ ),  $t(510) = 4.36$ ,  $p < .001$ .

### Employment, Maternity Leave, and Breastfeeding

To test for differences based on employment status for breastfeeding duration and intentions, six  $t$  tests were used with a Bonferonni correction of  $p = .006$  to control for inflated Type 1 error. Table 2 shows the means, standard deviations, and  $N$ s for those employed and not at each time. Women who were employed during their second trimester of pregnancy intended to breastfeed less time,  $t(302) = 4.62$ ,  $p < .001$ , and had shorter durations,  $t(432) = 3.56$ ,  $p < .001$ . Employment at 4 weeks postpartum was unrelated to intentions,  $t(302) = .05$ ,  $p = .96$ , or duration,  $t(432) = 1.70$ ,  $p = .09$ . Women who were employed at 4 months postpartum intended to breastfeed less time,  $t(299) = 3.61$ ,  $p < .001$ , and had shorter durations,  $t(432) = 4.14$ ,  $p < .001$ . Thus, except for those employed at 4 weeks postpartum, employment was related to duration and intentions to breastfeed.

To test whether a maternity leave of 8 weeks or 16 weeks was related to intentions or duration, four  $t$  tests were used with a Bonferonni correction of  $p = .013$  to control for inflated Type 1 error. When leave was split on those having 8 or more weeks of leave and those having less than 8 weeks

**Table 1**

Zero-Order Correlations Among Breastfeeding Variables, Demographic Variables, Attitudes, and Structural Factors

	1	2	3	4	5	6	7	8	9	10	11
1. Duration											
2. Intentions	.60***										
	294										
DEMOGRAPHIC VARIABLES											
3. Age	.26**	.17**									
	434	304									
4. Occupational Status	.11*	-.03	.33***								
	359	252	458								
5. Education	.11*	.02	.35***	.66***							
	434	304	548	458							
PERSONAL ATTITUDES											
6. Work Salience	-.06	-.10	.04	.20***	.16***						
	432	303	546	458	546						
7. Family Salience	.11*	.08	.13**	.07	.08	.08					
	434	304	547	457	547	545					
8. Enjoy Breastfeed	.33***	.19**	.10	.05	.04	.05	.11*				
	433	304	450	375	450	448	450				
9. Gender-Role Attitude	-.15**	-.13*	.10*	.25***	.25***	.32***	-.03	-.05			
	418	293	526	445	526	524	525	431			
STRUCTURAL VARIABLES											
10. Maternity Leave Length	.14*	.18*	.01	.02	.02	-.03	.01	.02	.01		
	303	205	376	365	376	375	376	304	367		
11. Workplace Flexibility	.07	.14*	.03	-.02	-.07	-.02	-.01	.06	-.01	-.05	
	295	201	361	361	350	360	361	296	359	351	
Mean	20.93	26.25	29.36	52.89	15.01	29.05	35.57	4.03	4.32	11.42	3.11
SD	18.28	17.93	4.35	16.69	2.15	5.96	4.65	1.02	.51	9.45	.65
N	434	304	548	458	548	546	547	450	526	376	447

Note. Cell values are *r* and *N*.  
 \**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

of leave, there was no significant difference in intentions,  $t(203) = 1.73, p = .09$ , or duration,  $t(301) = .08, p = .94$ . When leave was split on those having 16 or more weeks of leave and those having less than 16 weeks of leave, women who had longer leaves intended to breastfeed longer,  $M = 29.85, SD = 14.58$  versus  $M = 22.78, SD = 15.83, t(203) = 2.49, p = .013$ , and had marginally significantly longer duration of breastfeeding,  $M = 24.31, SD = 19.46$  versus  $M = 18.17, SD = 17.22, t(301) = 2.32, p = .021$ .

*Testing Models of Breastfeeding Duration*

To test whether the PA or SF models predicted the duration of breastfeeding, the sample was divided into two groups: those who were employed outside the home at 1 year postpartum ( $N = 257$ ) and those who were either not employed or were employed, but working at home ( $N = 177$ ). Women who worked at home were included in the second group because presumably their workplace is more flexible than the workplace of women employed outside the home. The 96 women who never breastfed were excluded from these analyses. Two regression analyses were run to compare the

amount of variance in breastfeeding duration accounted for by personal attitudes (work salience, family salience, gender-role attitudes, and enjoyment of breastfeeding) for each group (Table 3). For women who were not employed or who were employed at home, personal attitudes accounted for an additional 21% of the variance in breastfeeding duration after age and education were controlled, with gender-role attitudes and enjoyment both contributing uniquely to the model. Women with more traditional gender-role attitudes and women who enjoyed breastfeeding more breastfed longer than those with more egalitarian gender-role attitudes and those who enjoyed breastfeeding less. In contrast, for the women employed outside the home, personal attitudes accounted for only an additional 9% of the variance in breastfeeding duration with age and education controlled. Only enjoyment contributed significantly to this relationship.

To test whether employment significantly moderated the relationship between the PA variables and duration, four regressions were run for the whole sample testing the interaction of employment status with each personal attitude variable. After the demographic variables were entered, a

**Table 2**  
Relationship of Employment to Breastfeeding

		Employed					
		During Second Trimester <sup>a</sup>		4 Weeks After Birth <sup>b</sup>		4 Months After Birth <sup>c</sup>	
		Yes	No	Yes	No	Yes	No
Duration	<i>M</i>	19.40	27.14	25.53	20.45	18.24	25.64
	<i>SD</i>	18.08	17.85	18.44	18.22	17.28	19.05
	<i>N</i>	348	86	41	393	276	158
Intentions	<i>M</i>	23.92	35.33	26.40	26.23	23.52	31.09
	<i>SD</i>	15.77	22.58	18.14	17.93	16.94	18.68
	<i>N</i>	242	62	35	269	188	113

Note. Duration and intention are both measured in weeks.  
<sup>a</sup>Differences for duration and intentions significant,  $p < .001$ . <sup>b</sup>Differences not significant. <sup>c</sup>Differences for duration and intentions significant,  $p < .001$ .

dummy coded variable for employment status was entered, followed by the four personal attitude variables, and finally the interaction term was entered. The interaction between work status and family salience accounted for an additional significant 1% of variance in duration (Table 4). The interaction between work status and enjoyment was marginally significant,  $\beta = .35$ ,  $\Delta R^2 = .01$ ,  $p = .065$ . The interactions between work status and work salience and between work status and gender-role attitudes were not significant. Two regressions to test for the simple slopes of duration regressed on family salience showed that for women who were employed outside the home, the simple slope was not significant,  $Y_{duration} = -.13X_{family\ salience} + 22.58$ ,  $p = .58$ ; whereas the simple slope for women not employed outside the home was significant,  $Y_{duration} = 1.11X_{family\ salience} - 15.67$ ,  $p = .001$ .

**Table 3**

Duration of Breastfeeding Regressed on Age and Personal Attitudes

Variables	Employed Outside Home <sup>a</sup>		Not Employed or Employed at Home <sup>b</sup>	
	Model 1 $\beta$	Model 2 $\beta$	Model 1 $\beta$	Model 2 $\beta$
<b>DEMOGRAPHICS</b>				
Age	.17*	.16*	.35***	.35***
Education	.07	.08	.03	.03
<b>PERSONAL ATTITUDES</b>				
Work Salience		-.02		-.08
Family Salience		-.06		-.12
Gender Role Attitudes		-.06		-.16*
Enjoyment		.27***		.37***
$R^2$	.04**	.13**	.13***	.34***
$\Delta R^2$	.04**	.09***	.13***	.21***

<sup>a</sup> $N = 249$ . <sup>b</sup> $N = 164$ .  
<sup>\*</sup> $p < .05$ . <sup>\*\*</sup> $p < .01$ . <sup>\*\*\*</sup> $p < .001$ .

An additional regression analysis was run for the women who were employed outside the home to test whether the structural variables (length of maternity leave and work flexibility) contributed unique variance to duration over and above personal attitudes. After entering the demographic factors and the personal attitude variables, the structural variables contributed a marginally significant additional 2% of the variance in duration of breastfeeding,  $\Delta R^2 = .02$ ,  $p = .056$ . Enjoyment ( $\beta = .29$ ,  $p < .001$ ) and length of maternity leave ( $\beta = .14$ ,  $p = .02$ ) contributed uniquely to the variance in the final model. This full model accounted for 12% of the variance in duration,  $R^2 = .12$ ,  $p < .001$ .

Discussion

The purpose of this study was to examine the usefulness of a Personal Attitudes (PA) and a Structural Factors (SF) model

**Table 4**

Duration of Breastfeeding Regressed on Age, Personal Attitudes, and Structural Variables

Variables	Model 1 $\beta$	Model 2 $\beta$	Model 3 $\beta$	Model 4 $\beta$
<b>DEMOGRAPHICS</b>				
Age	.25***	.24***	.21***	.21***
Education	.02	.06	.09	.09
EMPLOYMENT STATUS		.18***	.14**	-.75*
<b>PERSONAL ATTITUDES</b>				
Work Salience			-.06	-.06
Family Salience			.02	-.05
Gender Role Attitudes			-.12*	-.12*
Enjoyment			.31***	.31***
Employ X Family Salience				.91*
$R^2$	.07***	.10***	.22***	.23***
$\Delta R^2$	.07***	.03***	.12***	.01*

Note.  $N = 414$ .  
<sup>\*</sup> $p < .05$ . <sup>\*\*</sup> $p < .01$ . <sup>\*\*\*</sup> $p < .001$ .

in predicting women's breastfeeding duration. In general, both models were supported.

### *Predicting Breastfeeding*

Employment is one of the most important predictors of breastfeeding behavior (e.g., Duckett, 1992; Kearney & Cronenwett, 1991; Lindberg, 1996b) and our results were consistent with this. Although employment prior to childbirth did not predict whether a woman ever breastfed and many of the women continued to breastfeed after returning to employment, employment prior to childbirth and at 4 months postpartum was related to how long a woman breastfed. Women employed at 4 months breastfed roughly 8 weeks less than those not employed at 4 months. In addition, employment at these times was related to how long a woman intended to breastfeed. Intentions are likely to represent individual preferences, as well as anticipated structural limitations in breastfeeding.

Partially consistent with previous research (e.g., Barnes et al., 1993; Ford & Labbok, 1990; Richardson & Champion, 1992) and with our predictions, demographic factors also predicted some aspects of breastfeeding behavior. Age predicted having ever breastfed and older women intended to breastfeed longer and did breastfeed longer than younger women. Age continued to uniquely predict duration even when other variables were included in regression analysis. More education predicted having breastfed, but did not predict intentions and only weakly predicted longer duration. Education also did not uniquely contribute to variance in duration in regression analyses when entered with age. Women's occupational status predicted having ever breastfed, but was only weakly related to duration of breastfeeding and unrelated to intentions or having breastfed. Thus, of the demographic variables we tested, age was the most important predictor of breastfeeding behavior. Demographic variables do not directly support a PA or SF model of infant feeding method. Differences in age may represent differences in personal attitudes, but they may also represent differential access to employment with more control and flexibility (Galtry, 1997). However, for these data, age was unrelated to length of maternity leave or workplace flexibility.

Enjoying breastfeeding was the personal attitude most predictive of intentions and duration. This is consistent with a PA model and with previous findings regarding attitudes toward breastfeeding (e.g., Duckett, 1992). Having more egalitarian gender-role attitudes was associated with greater likelihood of having breastfed at all (although this relationship was small), which is not surprising given the positive association between this attitude and age, education, and occupation status, all of which have been shown to be positively related to breastfeeding behavior. On the other hand, among those who breastfed, egalitarian gender-role attitudes was associated with intentions to breastfeed a shorter period of time and with a shorter duration of breast-

feeding. Those with egalitarian gender-role attitudes were more likely to be working at 1 year postpartum and thus may have had shorter duration and intentions because of their employment. However, for women who were not employed or who were employed at home, regression analyses continued to find gender-role attitudes to be a significant negative predictor of duration. Breastfeeding may be associated with successful mothering for some women (see Virden, 1988) and those with traditional gender-role attitudes may be likely to endorse such a model of successful mothering.

Work salience did not predict whether a woman had ever breastfed, duration, or intentions. This confirms our expectations regarding work salience. Family salience only weakly predicted duration of breastfeeding and did not predict having ever breastfed or intentions. This does not support our prediction that family salience would predict breastfeeding behavior. These variables were assessed during the second trimester, rather than postnatally, and that may have limited their relationship to the postnatal variables. Perhaps the salience of these variables changes with the birth of a child. On the other hand, using the prenatal variable may have provided a measure less affected by the structural circumstances of the postpartum period and may have been more consistent with our claim that this was a personal attitudes variable. And, methodologically, the prebirth measure can be tested for its ability to predict over time.

Consistent with previous research (Auerbach & Guss, 1984), a maternity leave of 16 weeks or more was related to longer intentions and marginally related to longer duration, but leave of 8 weeks or more was unrelated to these variables. An adequate maternity leave might provide structural differences, such as time to establish breastfeeding, but may also affect women's attitudes, as well as their anticipation of structural differences. The theory that intentions at least partially represent anticipated structural differences is somewhat supported by the weak relationship between perceiving the workplace as flexible and intentions to breastfeed longer.

### *Support for the Personal Attitudes Versus Structural Factors Model*

A PA model predicts that personal attitudes should predict breastfeeding behavior regardless of employment status. An SF model predicts that personal attitudes should be less useful in predicting breastfeeding duration for women who are employed outside the home compared to those who are not or who work at home, and that for those who are employed outside the home, structural variables should contribute unique variance over and above personal attitudes in predicting duration.

The results of this study provide support for both models of the determinants of infant feeding method. At 1 year postpartum, personal attitudes, including enjoyment of breastfeeding and gender-role attitudes, accounted for

more than twice as much variance in breastfeeding duration for women who were at home compared with those who were employed outside the home. The test of whether employment moderated the relationship of personal attitudes to duration showed that family salience predicted duration for women who were not employed outside the home, but not for those who were. Enjoyment of breastfeeding also had a marginally stronger relationship with duration for women who were not employed outside the home. On the other hand, for women who were employed outside the home, in the full regression model, maternity leave length only contributed marginally significant variance in addition to the personal attitudes variables. Thus, there was some support for both models.

### Limitations

This study is limited in the variables that were used for both personal attitudes and structural factors. Had we included additional components of women's attitudes, such as their beliefs about whether they *should* breastfeed, the personal attitudes may have been more important for employed women than the attitudes we used in this study, providing more support for a PA model.

On the other hand, more direct measures of the structural factors, such as a more direct measure of workplace flexibility, might have provided a stronger case for the SF model. For example, measuring workplace flexibility in terms of ability to control one's hours and ability to take breaks for extracting milk and clean private spaces for doing so would be important to study. We have also used only structural factors related to the workplace. The relationship of breastfeeding behavior to other structural factors that may affect both employed and unemployed women, such as the physical health of the mother and infant, adequacy of diet, access to breastfeeding information, material social support, and so on, would be important to study. We assumed that maternity leave is a structural factor, but it could also represent women's personal attitudes—especially given that this variable measured the amount of leave taken, rather than the leave allowed by the employer. Additionally, few structural factors were included in this study. Future research should assess more structural factors, such as access to breast pumps and facilities for extracting milk, and should measure others more directly, such as work flexibility specifically in relation to breastfeeding.

Our measure of gender-role attitudes measured explicit sexist attitudes and this may have limited the amount of variability in this measure. More general limitations of this study include the correlational nature of the data, which do not allow us to know whether structural factors or personal attitudes cause differences in breastfeeding behavior or if other factors influence both. The sample was primarily European American, of above average education and oc-

cupational status, and all were married or living with the father of their child at the beginning of the study. Different structural factors may be relevant to women in other contexts. For example, the availability of public assistance for nutritional support for breastfeeding women may be essential for women of nonprivileged classes. Humphreys et al. (1998) found the theory of reasoned action to predict intentions of breastfeeding in a sample of low-income women and argued that increasing women's intentions to breastfeed would increase rates of breastfeeding. However, without also paying attention to structural factors, this effort may be less successful. African American women generally have lower rates of breastfeeding than women of other ethnicities (U.S. Department of Health and Human Services, 2000). Knowing whether this lower rate is related to differences in attitudes toward breastfeeding or to differential access to structural support for breastfeeding would be important to study. Mother-only households may also have differing structural barriers to breastfeeding compared to two-parent households.

### Conclusions

Constructing breastfeeding as a choice based on personal attitudes versus a choice made in the context of structural factors that inhibit or encourage breastfeeding shapes the research we conduct and the policies for which we advocate. This study provides some support for the contention that those who wish to increase breastfeeding should attend to more than personal attitudes. Although understanding women's personal attitudes toward breastfeeding and the beliefs and knowledge they use to make decisions regarding infant feeding method is important, if we construct breastfeeding only as a personal choice, we will not be able to understand how structural factors shape women's decisions or even determine which behaviors are possible.

A focus only on personal attitudes also constructs infant feeding as an individual responsibility, rather than a societal responsibility. If we believe that responsibility for the health and well-being of women and children belongs only to individual women and that women choose freely how they feed their infants, then those who wish to increase breastfeeding will focus on providing information and emotional support to individual women. On the other hand, if we believe that society shares in the responsibility for the health and well-being of all its members and therefore has a responsibility to make breastfeeding possible, we must consider how the workplace may encourage or discourage breastfeeding, and we must implement policies that encourage the provision of adequate maternity leave and adequate facilities for breastfeeding employees.

As stated in the introduction, we have taken the perspective that breastfeeding is a reproductive issue, rather than a childcare issue, and as such have assumed breastfeeding

should be constructed in terms of equity. Indeed, as one researcher describes it, access to workplace facilities that allow breastfeeding is a reasonable accommodation for working mothers (Katcher & Lanese, 1985). If we want to advocate for breastfeeding, or for that matter, advocate for genuine choice in infant feeding method, we must more fully understand how structural factors expand and constrict women's infant feeding choices.

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