Reports

The Experience and Determinants of First-Time Breast-Feeding Duration among Low-Income Women from São Paulo, Brazil

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While the ability to breast-feed is virtually universal among women, the experience of breast-feeding is particular to each woman and is influenced by her social, economic, and personal circumstances. This paper explores quantitative and experience-focused ethnographic data on the experiences of low-income women from the eastern periphery of the city of São Paulo, Brazil, who were breast-feeding for the first time. The prospective, longitudinal data collection method involved repeated in-depth interviews with a group of 65 women, from the end of pregnancy through the first 12 weeks postpartum. Multivariate statistical analyses of the quantitative data revealed that older age, lower interpersonal satisfaction, and unplanned pregnancy shortened the period of exclusive breast-feeding and increased women's likelihood of having begun supplementation by 12 weeks postpartum. Ethnographic data analysis exposed the meanings of breast-feeding and motherhood for women who had experienced unplanned pregnancy and helped to shed light on the dramatic influence of unplanned pregnancy on women's breast-feeding practice.

Breast-feeding is a quintessential anthropological subject, being rooted in our evolved biology and profoundly influenced by our cultural beliefs and practices. While the ability to breast-feed is virtually universal among women, the experience of breast-feeding is particular to each woman. As McDade and Worthman (1998), Sellen (2001), and others have argued, women's decisions about whether to initiate and continue breast-feeding and when to wean are shaped and constrained by a "complex mix of material and ideological factors" (Sellen 2001:2707). A woman's biological systems provide the capacity for lactation, her structural and cultural milieux often define the parameters for decisions about infant feeding, and her individual experience shapes her own breast-feeding practice.

A great deal of research, both quantitative and qualitative, has been in undertaken to investigate the factors that influence women to switch from exclusive breast-feeding to supplementing the infant diet with non–breast milk foods. Researchers have employed quantitative and qualitative methodologies to investigate breast-feeding duration, but little research has been conducted that examines the determinants of breast-feeding duration simultaneously through statistical modeling and through ethnographic data on individual experience.

Quantitative methods have commonly been employed to identify factors that statistically predict breast-feeding outcome or duration. Three of the most influential factors that have been identified in multiple broad-based studies are education (Flacking, Nyqvist, and Ewald 2007; Quandt 1985), employment (Flower et al. 2008; Kosmala-Anderson and Wallace 2006; Van Esterik and Greiner 1981), and wealth or income level (Callen and Pinelli 2004; Vitzthum 1992). These factors are structural in nature and can easily be understood to constrain women's infant-feeding choices.

Other factors that have also been found to have a large influence on breast-feeding duration are seemingly more idiosyncratic or related to personal choice, such as age at first birth (Mirowsky and Ross 2002; Raeff 1996), interpersonal support levels (Ekstrom, Nissen, and Widstrom 2003; Humphreys, Thompson, and Miner 1998), and unplanned pregnancy (Cheng et al. 2009; Dye et al. 1997; Gipson, Koenig, and Hindin 2008; Hromi-Fiedler and Perez-Escamilla 2006; Joyce, Kaestner, and Korenman 2000; Taylor and Cabral 2002). However, the choices underlying these apparently personal circumstances are commonly closely tied to structural antecedents, such as poverty and socioeconomic status. Little research has been performed investigating what lies beneath the effects of these factors on breast-feeding practice.

Breast-feeding research employing a phenomenological or experience-based ethnographic method (Schmied and Lupton 2001), which seeks to describe the essence of a phenomenon, as experienced by participants who have the "lived experience" of the event (Cresswell 1998), has become more common over the past 15 years among researchers in Australia, the United Kingdom, and, to a lesser extent, North America. Experiential research has explored the experiences of women who encountered serious difficulties with breast-feeding (Hauck, Langton, and Coyle 2002), who expressed ambivalence about the idealized "good mother" role (Lupton 2000), and who found becoming a mother later in life particularly difficult (Shelton and Johnson 2006), among other themes. The in-depth nature of the data provides an insider perspective on the practice of breast-feeding and its meaning in women's lives, grounding conclusions in the experiences of particular small groups of women but also engaging with the impact of larger social processes. While this type of research is now fairly established in industrialized nations, it is still extremely rare to hear directly from women from low-income

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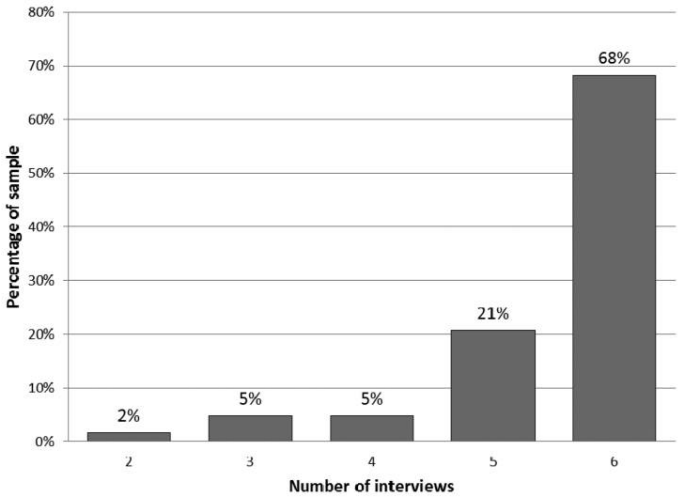

Figure 1. Percentage of sample by number of postpartum interviews completed. A color version of this figure is available in the online edition of *Current Anthropology*.

countries regarding breast-feeding (for one of the few examples, see Gottschang 2007).

Quantitative and qualitative methodological approaches offer complementary lenses that each provide important insights regarding women's infant-feeding choices. Through longitudinal quantitative analysis, we can examine a wide variety of possible factors of influence and investigate the magnitude of importance of each. In turn, experience-based ethnographic methods expose women's meaning making about these factors in their lives and how they shape breast-feeding experience, leading to a deeper understanding of what lies beneath the statistical effects.

The present study is novel within the realm of breast-feeding research in that it combines quantitative and experience-focused ethnographic approaches to determine which factors in the lives of low-income women in São Paulo, Brazil, influence the decision to end exclusive breast-feeding in the first 12 weeks postpartum and why these factors are influential. It is also one of the few studies as yet to provide in-depth ethnographic data drawn from the narratives of breast-feeding women outside of the industrialized world.

Methods

Field research was conducted between January 2006 and February 2007 in the eastern zone of the city of São Paulo, under the auspices of the Santa Marcelina Foundation Family Health Program (FHP), which provides free care to the population through 58 neighborhood health clinics and three hospitals. Through FHP clinics, 65 urban women from six low-income neighborhoods were recruited to participate in the study. To participate, women were required to be between 15 and 45 years old, expecting their first child, and intending to breast-feed exclusively for at least 12 weeks. Ethics approval for the study was obtained from the University of Massachusetts Amherst Institutional Review Board, as well as the Santa Marcelina Foundation Ethics Review Board. All participants provided written informed consent following a full description of the study.

The research design involved one interview prepartum and six interviews postpartum for each participant. The prepartum interview took place during the latter half of the pregnancy. Postpartum interviews took place starting at 2 weeks postpartum and then every 2 weeks until 12 weeks postpartum. Two participants were lost to follow-up after completing the prepartum interview: one participant withdrew from the study, and one moved away from the city, both after 6 weeks postpartum. Some participants who completed the study missed one or more of the interviews. The number of postpartum interviews completed per participant ranged from two to six (fig. 1), and breast-feeding outcome is available for 61 participants. I conducted all interviews personally, in Portuguese, and took detailed handwritten notes. Interviews were also digitally recorded.

The prepartum interview was conducted in the nearest clinic and covered basic demographic and lifestyle information and breast-feeding intentions. Postpartum interviews lasting between 30 and 75 minutes were conducted in each participant's home. These in-depth interviews explored issues including breast-feeding experience, life changes postpartum, and stressful day-to-day experiences. At each postpartum interview, women were asked whether they were breast-feeding; if so, how often; and whether the infant was consuming anything other than breast milk. Women's breast-feeding practices at each time point were then classified using five cate-

gories: exclusively breast-feeding (no non–breast milk food or liquids), predominantly breast-feeding (infant given formula in hospital/offered formula once or twice at home), partially breast-feeding (regularly supplementing with other foods or liquids), token breast-feeding (breast-feeding sporadically), and weaned (not breast-feeding). Due to the sample size, the five categories were dichotomized into fully breast-feeding (exclusive + predominant) and regularly supplementing (partially breast-feeding + token + weaned) for analysis.

The short period between interviews minimized errors in participants' recall. If an interview was missed when a feeding change occurred, the participant was asked the age of the infant at the time of the change. Participants were able to cross-check the date of the change by using external markers such as the infant's monthly doctor's appointment or the previous research interview.

Self-Reported Stress and Satisfaction Scores

During each of the postpartum interviews, participants were asked to rate their satisfaction with three aspects of their daily lives identified as potential sources of dissatisfaction in informal interviews with women from the same neighborhoods. Participants were asked to rate their satisfaction with each of the three aspects on a scale from 1 to 5 (1 = low satisfaction, 5 = high satisfaction). These three aspects (happiness at home, relationship with father of the child, and relationship with family) made up an interpersonal satisfaction scale with a maximum score of 15. Internal consistency among the three aspects of the scale was acceptable (Cronbach's $\alpha = 0.6$). The intraclass correlation coefficient for test-retest reliability between multiple administrations was high (0.85). Mean interpersonal satisfaction score for each woman was calculated across all interview points. Participants were also asked at each interview to rate their level of day-to-day stress on a 10-point scale (1 = low stress, 10 = high stress). The participants' mean stress scores across all interviews were calculated.

Data Analysis

Statistical analyses were conducted using SPSS 18.0. Fisher exact tests, χ^2 tests, and analysis of variance were used to test for bivariate associations between explanatory variables and breast-feeding outcome at 12 weeks. Cox regression was used to estimate a regression model for the timing of introduction of supplementary foods. Cox regression is a survival analysis used to investigate the influence of variables on the time it takes for an event to occur (e.g., regular supplementation). The model included the variables that were found to be significant in bivariate analyses, as well as age and education, since previous research has found a strong association between these factors and breast-feeding duration (Flacking, Nyqvist, and Ewald 2007). The 10-point stress score was not included due to marked collinearity with interpersonal satisfaction score. Predictors were removed based on $\alpha = 0.05$. Logistic regression was used to estimate a model for the ultimate breast-feeding outcome at 12 weeks postpartum, including the variables found to be significant in bivariate analyses, as well as age and education.

Ethnographic interviews were translated/transcribed from digital recordings. Themes related to breast-feeding and mothering emerged and were coded manually. Similarities in discourse and patterns in the way that women with similar characteristics expressed their feelings about pregnancy, breast-feeding, and motherhood were identified. All names given below are pseudonyms.

Findings

Quantitative Results

All participants breast-fed the infant for some period after birth. By 12 weeks, 59% of the women were fully breast-feeding, and 41% had begun regular supplementation with foods or liquids other than breast milk. Of the women who were fully breast-feeding, only one made regular and effective use of a breast pump, feeding her baby breast milk exclusively to 12 weeks. The poor quality of pumps available meant that women who tried pumping usually quickly transitioned to feeding non–breast milk foods.

Frequencies and descriptive statistics are shown in table 1. The first column provides the data for the complete sample. The next two columns provide the data broken down by breast-feeding outcome. Significance level for differences between outcome groups is indicated in the final column.

Women having their first child in these six São Paulo neighborhoods were young, with 38% of participants between 15 and 19 years of age (mean, 22.2 ± 5.5 years). More than one-third (36.1%) had an incomplete high school education or less, and less than one-third were employed (30.8%). Among those who knew their household's monthly income, the mean was R$767 (±$643; approximately US$383 ± $321). No significant associations were found between breast-feeding outcome at 12 weeks and participant's age, educational attainment, employment status, or household monthly income.

Just under two-thirds of the participants (63.1%) reported during the prepartum interview that they were either "together" or married. Women who were fully breast-feeding were more likely to be married (47.2%), while those who were supplementing were more likely to be single (48.0%), but overall there was no statistically significant association. Women who were fully breast-feeding at 12 weeks were much more likely to be living with a partner (80.6%) than were women who were supplementing (52.0%). Many women (50.9%) shared a household with their mother, whether or not they were living with a partner as well. Living situation overall was not significantly associated with breast-feeding outcome.

About one-third of the participants (32.3%) had planned to become pregnant. Significantly more women who were fully breast-feeding at 12 weeks had planned to become preg-

Table 1. Frequencies and descriptive statistics for complete sample and by breast-feeding outcome groups

Variable	Complete sample ($n = 61$)	Fully breast-feeding ($n = 36$)	Supplementing ($n = 25$)	P
Age (mean ± SD)	22.2 ± 5.5	21.1 ± 4.2	23.1 ± 6.8	NS
Education:				
Incomplete high school or less (%)	22 (36.1)	14 (38.9)	8 (32.0)	
Complete high school or more (%)	34 (55.7)	20 (55.6)	14 (56.0)	NS
In high school (%)	5 (8.2)	2 (5.6)	3 (12.0)	
Employed:				
No (%)	44 (69.2)	26 (72.2)	18 (72.0)	NS
Yes (%)	17 (30.8)	10 (27.8)	7 (28.0)	
Monthly household income (R$1 ≈ US$0.50; $n = 49$)	767 ± 643	874 ± 692	603 ± 561	NS
Relationship status:				
Single (%)	23 (36.9)	11 (30.6)	12 (48.0)	
"Together" (%)	13 (23.1)	8 (22.2)	5 (20)	NS
Married (%)	25 (40.0)	17 (47.2)	8 (32.0)	
Participant living situation:				
With partner only (%)	21 (34.4)	13 (36.1)	8 (32.0)	
Mother's household without partner (%)	17 (27.9)	6 (16.7)	11 (44.0)	
Mother's household with partner (%)	14 (23.0)	11 (30.6)	3 (12.0)	NS
Mother-in-law's household with partner (%)	7 (11.5)	5 (13.9)	2 (8.0)	
Alone (%)	2 (3.3)	1 (2.8)	1 (4.0)	
Planned pregnancy:				
No (%)	41 (67.7)	20 (55.6)	21 (84.0)	.018
Yes (%)	20 (32.3)	16 (44.4)	4 (16.0)	
Delivery type:				
Vaginal delivery (%)	37 (60.7)	19 (52.8)	18 (72.0)	NS
Caesarean or forceps delivery (%)	24 (39.3)	17 (47.2)	7 (28.0)	
Intended duration of breast-feeding:				
<6 months (%)	8 (13.1)	2 (5.6)	6 (24.0)	
6 months (%)	18 (29.5)	13 (36.1)	5 (20.0)	NS
6+ months (%)	22 (36.1)	13 (36.1)	9 (36.0)	
Milk supply dependent (%)	5 (8.2)	2 (5.6)	3 (12.0)	
Infant preference dependent (%)	8 (13.1)	6 (16.7)	2 (8.0)	
Interpersonal satisfaction score (mean ± SD, out of 15)	12.9 ± 1.8	13.4 ± 1.6	12.3 ± 1.8	.015
10-point stress scale score (mean ± SD)	4.9 ± 2.2	4.4 ± 2.2	5.6 ± 2.1	.053

Note. NS = not significant.

nant (44.4%) compared with women who were supplementing (16.0%; $P = .018$). Adolescent women (≤19 years) with planned pregnancies were significantly more likely to be fully breast-feeding (100%; $P = .044$) than were women over 20 with planned pregnancies (73.3%) or adolescent or adult women who had unplanned pregnancies (47.8% and 50.0%, respectively).

Nearly 40% of participants experienced a medical intervention during delivery (Caesarean, 37.7%; forceps assisted, 1.6%), while 60.7% had a vaginal delivery. The type of delivery that the participant experienced was not associated with breast-feeding outcome.

Women's intended length of exclusive breast-feeding beyond 12 weeks varied. Nearly two-thirds (65.6%) intended to breast-feed exclusively for 6 months or longer. Women who were supplementing by 12 weeks were more likely to have intended to breast-feed exclusively for less than 6 months than were women who were still breast-feeding fully (24.0% vs. 5.6%). Overall, however, breast-feeding intention was not significantly associated with breast-feeding outcome.

Women who were breast-feeding fully at 12 weeks reported significantly higher mean interpersonal satisfaction than did those who were supplementing ($P = .015$; fig. 2). Fully breast-feeding women also had marginally significant lower mean scores on the 10-point stress scale than did women who had supplemented by 12 weeks postpartum ($P = .053$; fig. 2).

Multivariate Models

Cox regression was used to determine which factors predicted time to regular supplementation. Earlier age at supplementation was predicted by unplanned pregnancy (odds ratio [OR], 4.69; 95% confidence interval [CI], 1.47–14.96), older age (OR, 1.08; 95% CI, 1.02–1.16), and lower interpersonal satisfaction score (OR, 0.79; 95% CI, 0.62–0.99; table 2). A large difference in time to supplementation is evident between women who did plan their pregnancy and those who did not (adjusted for age and interpersonal satisfaction score; fig. 3).

A logistic regression model was estimated to examine the factors predictive of women's breast-feeding outcome at 12 weeks postpartum (table 3). These factors were unplanned pregnancy (OR, 11.55; 95% CI, 1.81–73.87), older age (OR,

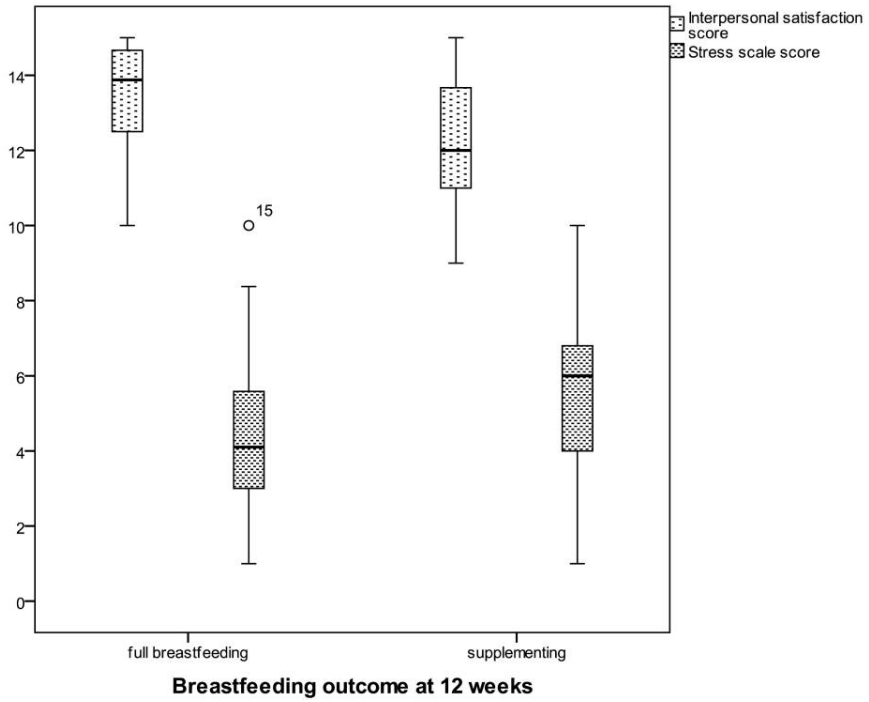

Figure 2. Box plot. Interpersonal satisfaction score and 10-point stress score by breast-feeding outcome.

1.19; 95% CI, 1.03–1.38), and lower interpersonal satisfaction score (OR, 0.70; 95% CI, 0.50–0.99).

The logistic regression model was rerun including monthly household income (subsample $n = 49$). Household income was not significantly predictive of breast-feeding outcome, and the effect of the other predictors remained unchanged (not shown). Further bivariate analyses were run to examine differences between women with planned pregnancies and those with unplanned pregnancies (table 4). Women with unplanned pregnancies were significantly younger than women with planned pregnancies (20.9 vs. 24.9 years; $P = .005$), less likely to have completed high school ($P = .02$), and more likely to be single ($P < .001$) and to have household income below the sample median ($P = .018$). Only 20.0% of women with planned pregnancies had begun regular supplementation by 12 weeks compared with 51.2% of women with unplanned pregnancies ($P = .018$). Women with unplanned pregnancies did not differ significantly with regard to any other variables examined in this study.

Ethnographic Results

Discussions with women about their day-to-day lives provided rich ethnographic data related to women's experiences of pregnancy, motherhood, and breast-feeding and an opportunity to investigate the strong statistical effect of unplanned pregnancy on breast-feeding duration. While most, if not all, women experience some degree of ambivalence to their role as a mother (Lupton 2000; Parker 1995), in this study women who had not planned to become pregnant often expressed frankly negative feelings about becoming a mother. Many did not acknowledge the pregnancy for months. Jacira, 18, maintained that she had no awareness that she was pregnant: "It wasn't even me who knew. It was [the baby's] father. . . . I was already 4 months along when we went to the clinic [to have the pregnancy test]." Similarly, Claudinha, 16, ignored the bodily signal of absent menstrual periods, saying for the first 6 months "next month it'll come, next month it'll come." Even in the final months of pregnancy, some participants, such as Lucrecia, 20, were still in denial: "We don't believe it, we say 'no.' . . . [I believed it] only when [the baby] moved." Rosinha, 18, said, "I was never pregnant. I was only pregnant when I hit my belly [against things]. I bumped my belly a lot; I would forget about it," while Eu-

Table 2. Cox regression model: time to supplementation

				95% CI	
	df	*P*	OR	Lower	Upper
Unplanned pregnancy	1	.009	4.69	1.47	14.96
Age	1	.018	1.08	1.02	1.16
Interpersonal satisfaction	1	.042	.79	.62	.99

Note. OR, odds ratio. CI, confidence interval.

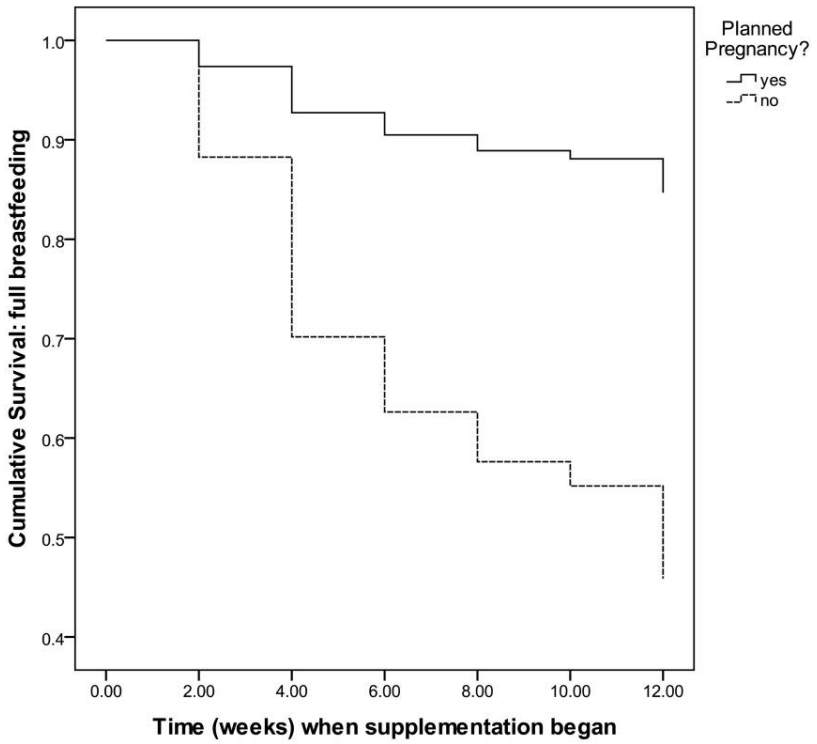

Figure 3. Survival curve for full breast-feeding by planned status of pregnancy.

genia, 21, said that the reality of becoming a mother sank in "only when [the baby] was born."

Although many of the women who became pregnant unintentionally reported that they had become *acomodada* (accepting of) or *conformada* (resigned to) their maternal role, their ambivalence about the situation was evident in their discussions of life after the birth. Mônica, 21, described feeling "not very caring . . . as though I'm still asleep. I haven't woken up yet. I can't believe that *I'm* a mother, né? . . . I kiss him, I hug him, but I'm not like . . . you know." The loss of an independent identity and personal freedom was keenly felt. For Maria José, 19, the change in her identity felt all encompassing: "Everything that I did, you know? Everything that I was before, today I'm not anymore. . . . Now I'm nothing more than a mother." In describing her postpartum life, Bete, an older mother at 38, emphasized how altered it felt: "How it changed! Before, I used to go out, drink a beer, hang out with my friends. Now I don't do it anymore. . . . It changed my life completely. Completely, completely, completely."

Women's ambivalence was, if anything, more intense regarding breast-feeding. The Brazilian Ministry of Health vigorously promotes exclusive breast-feeding through posters, pamphlets, and other breast-feeding materials (Rudzik 2011), making breast-feeding a "hallmark" of good mothering (Wall 2001) in Brazil, but some mothers embrace and others resist the definition of breast-feeding as essential to good mothering (Rudzik 2011). Women with planned pregnancies embraced full breast-feeding as the epitome of maternal love and sacrifice. Notably, they revelled in the physicality of the connection between themselves and their infants, as exemplified through the following quotes:

> I think the strongest bond is during breast-feeding, né? It's very good. It's a moment between you and her, né? . . . It's very good having someone there sucking your milk. (Sonia, 28)

> Knowing that you're a mother, that you have milk for her to drink that comes from your body, it's very *gostoso* (enjoyable/pleasurable), that experience. (Maria Elena, 22)

Table 3. Logistic regression: supplementation before 12 weeks

				95% CI	
	df	*P*	OR	Lower	Upper
Unplanned pregnancy	1	.010	11.55	1.81	73.87
Age	1	.019	1.19	1.03	1.38
Interpersonal satisfaction	1	.043	.70	.50	.99

Note. OR, odds ratio. CI, confidence interval.

Table 4. Bivariate analysis of differences between women who had planned pregnancies and those who had unplanned pregnancies ($n = 65$)

	Planned pregnancy ($n = 21$)	Unplanned pregnancy ($n = 44$)	P
Breast-feeding outcome ($n = 61$):			
Fully breast-feeding (%)	16 (80.0)	20 (48.8)	.018
Supplementing (%)	4 (20.0)	21 (51.2)	
Age (mean ± SD)	24.9 ± 5.5	20.9 ± 4.9	.005
Education:			
Incomplete high school or less (%)	4 (19.0)	19 (43.2)	
Complete high school or more (%)	17 (81.0)	19 (43.2)	.02
Still in high school (%)	0	6 (13.6)	
Relationship status:			
Single	0	24 (54.5)	
"Together" (%)	4 (19.0)	11 (25.0)	<.001
Married (%)	17 (81.0)	9 (20.5)	
Household monthly income ($n = 50$):			
Below median (%)	5 (27.8)	20 (62.5)	.018
Above median (%)	13 (72.2)	12 (37.5)	

> Breast-feeding, it unites you, it joins you, né? When your child is hungry, you have to take out your breast and put him close to your skin, to your flesh. . . . In that moment he's in the mother's arms and feeling the mother's flesh and skin, and so he feels secure. (Débora, 24)

In contrast, women with unplanned pregnancies expressed mostly negative feelings about the physicality of breast-feeding. Claudinha, 16, described breast-feeding her daughter, saying, "When you're breast-feeding her, you feel her there sucking, the milk coming out. Ah, it's horrible. I don't like it, that sensation, no." Cleonice, 18, was amazed that the baby seemed to consume time as much as milk. "He stayed breast-feeding the whole night! He didn't stop!" she said. The insatiable infant was a common theme. Most often women who had unplanned pregnancies described the physical and metaphorical draining of their reserves by their infant.

> She never lets me stop. She sucked to the point that nothing came out at all. (Irene, 30)

> I feed, feed, feed, she sucks, sucks, sucks, and she still wants more! . . . She only stops crying to open her mouth [to breast-feed]. (Amaracleia, 18)

The contrast between the ideal of breast-feeding as a moment of physical connection and intimacy between a woman and her baby and the idea of the baby as draining and insatiable was a striking difference in the discourses of women who had and had not planned to become pregnant.

Discussion

Exclusive breast-feeding for the first 6 months of life is recommended by the World Health Organization and vigorously promoted by the Brazilian Ministry of Health. However, most women in São Paulo choose to supplement or wean before 6 months (Venancio et al. 2002). This study recruited only women who intended to breast-feed exclusively for the first 3 months postpartum, and the rate of full breast-feeding at 12 weeks was still less than 60%. During pregnancy, all participants were exposed to vigorous promotion of exclusive breast-feeding in keeping with Brazilian Ministry of Health guidelines (Rudzik 2011), but postpartum support for breast-feeding was not always easy to access. The quantitative results reveal structural and personal factors that influenced breast-feeding duration, while the qualitative data illuminate these results, in particular the important influence of unplanned pregnancy.

First-time breast-feeding women in this study were young, with nearly 40% in the adolescent years. This high rate of adolescent motherhood contrasts with a rate of just over 10% in the United States (Martin et al. 2010) and 20% for Brazil as a whole (Sabroza et al. 2004). They shared certain structural characteristics, having low levels of formal education and waged employment and low household income. These structural factors did not vary by breast-feeding outcome group, a finding that contrasts with previous research on breast-feeding duration.

Education has previously been found to predict breast-feeding initiation and duration in many parts of the world (Quandt 1985; Venancio et al. 2002). In other studies, women's income levels have been identified as predictors of both initiation and duration of breast-feeding (Callen and Pinelli 2004; Flacking, Nyqvist, and Ewald 2007). However, the women in this study were purposely drawn from six neighborhoods that were socioeconomically homogenous, such that the small variations in income or education would be unlikely to have as much influence. Employment has also been associated with shortened breast-feeding duration (Flower et al. 2008; Kosmala-Anderson and Wallace 2006; Van Esterik and Greiner 1981). The impact of employment in this sample is likely minimized because those who were employed had access to 4 months of maternity leave and at 12 weeks they were not directly facing the conflict between work and

breast-feeding. While education, employment, and household income were not associated with breast-feeding outcome directly, their effect may be seen in part through their association with unplanned pregnancy rates, as will be discussed below.

The influence of family and partners on breast-feeding duration in this study requires some elaboration. Neither relationship status nor living situation was statistically associated with breast-feeding outcome at 12 weeks. However, in both bivariate and multivariate analyses, interpersonal satisfaction was strongly and significantly associated with breast-feeding outcome. This supports the idea that partners' and family members' positive responses to breast-feeding encourage its continuation, while negative responses from the same individuals can lead to discontinuation (Hauck, Langton, and Coyle 2002).

The multivariate statistical models estimated for time to supplementation and for breast-feeding outcome at 12 weeks revealed three factors that predicted women's breast-feeding practice. Older age significantly predicted an earlier introduction of supplementary foods and also increased the likelihood of supplementing by 12 weeks. Indeed, adolescent women with planned pregnancies were 25% more likely to fully breast-feed to 12 weeks than were adult women with planned pregnancies. These results contrast with quantitative findings that older women are significantly more likely to breast-feed (Humphreys, Thompson, and Miner 1998). However, they echo other more experientially oriented research; among British new mothers, it was found that those over 30 years of age, with established independent lives, had more difficulty integrating motherhood with their preexisting identities (Shelton and Johnson 2006), and postpartum feelings of isolation or captivity were also found to be more intense (Mirowsky and Ross 2002; Raeff 1996). In the present study, narratives from women such as Bete revealed that older mothers had more difficulty adapting to the loss of freedom associated with breast-feeding, while those adolescent women who chose to become pregnant in their teens were more willing to embrace those constraints.

As described above, higher interpersonal satisfaction with partners and family and in the home delayed regular introduction of supplementation and reduced the likelihood of supplementation by 12 weeks. The supportive nature of interactions was clearly the most important issue, as mere proximity to mothers or partners (living situation) did not predict breast-feeding outcome at 12 weeks. Cross-culturally, women breast-feed for longer in societies in which men are more actively involved in child care (Quinlan and Quinlan 2008), while overall support from partners and grandmothers was also found to extend the length of breast-feeding (Ekstrom, Nissen, and Widstrom 2003; Humphreys, Thompson, and Miner 1998). The use of a new validated scale for interpersonal satisfaction, designed in this Brazilian context, enables a novel measurement of the kind of satisfaction that protects breast-feeding among low-income women.

While age and interpersonal satisfaction had a significant impact on breast-feeding outcome, the factor with by far the largest impact in the multivariate analyses was unplanned pregnancy. Women with unplanned pregnancies were more than four times as likely to supplement earlier than were women with planned pregnancies, and they were more than 10 times as likely to regularly supplement by 12 weeks postpartum. A substantial body of survey-level quantitative research has shown a negative association between unintended pregnancy and duration of breast-feeding (Cheng et al. 2009; Dye et al. 1997; Hromi-Fiedler and Perez-Escamilla 2006; Taylor and Cabral 2002). Women who bear children from unplanned pregnancies have widely been found to be less likely to initiate and to continue breast-feeding (Gipson, Koenig, and Hindin 2008; Joyce, Kaestner, and Korenman 2000). In this study, both statistical and qualitative data are used to provide an unusually complex and rich context to explain the link between unplanned pregnancy and breast-feeding outcome.

Bivariate analyses found that women who experienced unplanned pregnancy were more socioeconomically disadvantaged than were those who had planned pregnancies, being younger and less educated, with lower household income. Similar findings were noted in the United States, where women who are younger (18–24 years) and low income and did not complete high school have an unplanned pregnancy rate substantially above average (Finer and Henshaw 2006). Young women who feel that they have few prospects in life or little to aspire to are more likely to make sexual choices that can lead to unplanned pregnancy (Hoga 2008). While the link between socioeconomic disadvantage and unplanned pregnancy is plain, the reasons that women with unplanned pregnancies are more resistant to breast-feeding have not been investigated in the past.

Repeated in-depth interviews with participants in this study exposed the meanings of breast-feeding and motherhood for women who had experienced unplanned pregnancy and helped to shed light on its dramatic influence on breast-feeding duration. Women's discourses about pregnancy, motherhood in general, and breast-feeding in particular suggest that intensely negative feelings with regard to mothering as an embodied practice may explain why women who had unplanned pregnancies introduced supplementation earlier and were more likely to be supplementing by 12 weeks postpartum.

Since among these participants extrafamilial adoption was virtually unheard of and abortion both illegal and socially unacceptable, unplanned pregnancy most often led to a single outcome: becoming a mother. This fact was so distressing that many women simply refused to acknowledge their pregnancy. Women stressed the ways that they were "unaware" of the bodily signals of pregnancy—the absent menstrual periods, the growing, stretching belly. The denial and rejection of the pregnancy were implicitly the denial and rejection of the embodiment of maternal subjectivity. In Parker's (1995) words,

"the pain of ambivalence leads to a desire not to know . . . unable to acknowledge the depths of hostile and complex feelings evoked by pregnancy a woman carries her child physically but not psychologically. She simply does not 'know' she is pregnant" (8). When pregnancy and motherhood were unsought and unwanted, these signatures of pregnancy were literally unthinkable.

Following the birth, women spoke of the disjuncture between their self and their new identity as mother to a child. Mônica, Maria José, and Bete all emphasized their sense that their "true self" was fundamentally and completely different from their maternal role, echoing findings of a previous study of adolescents who experienced unplanned pregnancy (Raeff 1996). Given the rejection of the pregnant body as an embodied sign of impending motherhood and the resistance to the identity of "mother" after the birth, it is not surprising that women who experienced unplanned pregnancy disliked the act of breast-feeding, which expresses the maternal identity through the woman's very flesh.

Women who had planned to become pregnant spoke of breast-feeding as a wonderful gift and a unique experience. They explicitly referred to the physicality of breast-feeding as being a crucial part of the experience, with Sonia talking about the feeling of her daughter nursing at her breast, Maria Elena emphasizing the bodily origin of the milk that nourished her daughter, and Débora focusing on the warmth and physicality of the connection between mother and child.

In contrast, among women who had not planned to become mothers, mentions of the physicality of breast-feeding, such as Claudinha's comment that breast-feeding was "horrible," were solidly negative, focused on the draining, both literal and metaphorical, of the woman's reserves by her child. Like women in other contexts (Lupton 2000), these women perceived their infants as demanding attention and energy far beyond what was reasonable. Although women in industrialized countries talk about experiencing the act of breast-feeding as an invasion of personal bodily limits/subjectivity (Schmied and Lupton 2001), the discomfort expressed by women with unplanned pregnancies in the current study was more constant and less equivocal.

Previous discussions of ambivalence regarding breast-feeding have focused on ambivalence due to societal norms and other external pressures (Kaufman, Deenadayalan, and Karpati 2010; Wambach and Koehn 2004). However, the experientially based ethnographic data collected from this group of Brazilian women suggest that resistance to unplanned motherhood and to the physicality of breast-feeding may be a central determinant of their infant-feeding decisions.

Conclusions

This study is one of the first to combine quantitative analysis and experientially oriented ethnographic data to investigate women's choices about breast-feeding in a low-income country. Moreover, the approach used was able to illuminate the dramatic impact of unplanned pregnancy on breast-feeding duration, a topic on which relatively little research has taken place in low-income contexts (Gipson, Koenig, and Hindin 2008).

From a practical perspective, the findings presented here have several implications for breast-feeding promotion in São Paulo. Rates of unplanned pregnancy are extremely high in the eastern zone and are related to structural inequalities of education, income, and employment, while women's breast-feeding duration was dramatically influenced by unplanned pregnancy. The negative feelings that women have about unplanned pregnancy produce marked ambivalence toward breast-feeding, and this ambivalence appears to underlie the early supplementation among women who did not plan to become pregnant when they did. Women, especially adolescents, who become pregnant unintentionally occupy a marginalized position with respect to the dominant "good mother" ideal, and failing to breast-feed for the recommended 6-month period increases that marginalization. Sensitizing health workers to the internal pressures faced by women who experience unplanned pregnancy provides one important way to improve breast-feeding promotional programs.

With regard to the discipline of anthropology, the weaving together of statistical and experiential ethnographic data and analysis with the aim of investigating a deeply biological, profoundly cultural practice such as breast-feeding offers the potential for real holism, bringing together facets of the discipline at exactly the point where fragmentation often occurs, at the point of methodology.

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