
Interaction of Factors Related to Lactation Duration

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Abstract

Perceived social support and interpersonal dependency were studied as potential factors associated with lactation duration based upon previous breastfeeding experience. Inexperienced breastfeeding mothers perceived more social support than experienced breastfeeding mothers did. Perceived social support was not significantly correlated with lactation duration. An ancillary finding was that women providing a combination of breast milk and human milk substitutes had significantly lower social self-confidence than did mothers providing breast milk exclusively.

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Through research, breastfeeding has been shown to be the optimal method of infant feeding (American Dietetic Association [ADA], 1997; American Academy of Pediatrics [AAP], 1997). In 1997, the AAP and the ADA strengthened their advocacy of breastfeeding. In addition to other issues, they resolutely support and encourage mothers to breastfeed their infants one year or longer.

According to the Second Follow-up Report of the Surgeon General's Workshop on Breastfeeding and Human Lactation (Spisak & Gross, 1991), "the incidence of breastfeeding peaked in 1982 with 62% of new mothers initiating lactation and 30% continuing until 6 months postpartum." However, the Surgeon General's Workshop report noted that the incidence of breastfeeding subsequently decreased. Approximately 60% of the infants born in the United States in 1995 were breastfed

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upon release from the hospital and about 22% were breastfed for at least 6 months (Ryan, A., 1997). Because breastfeeding has been shown to be the optimal method of infant feeding, it is recommended that health care professionals encourage pregnant women to breastfeed (ADA, 1997; AAP, 1997). Consequently, it is essential that the factors that encourage women to breastfeed and insure success now be understood.

Several factors influence breastfeeding duration. Some of these factors, positively correlated to increase duration, are education (Lawson & Tulloch, 1995; Schy, Maglaya, Mendelson, Race & Ludwig-Beymer, 1996), income (Adair, Popkin & Guilkey, 1993), confidence, anticipated breastfeeding duration (Schy, et al., 1996), prior breastfeeding experience (Adair, et al., 1993), prenatal intent (Piper & Parks, 1996; Quarles, Williams, Hoyle, Brimeyer & Williams, 1994), and an affirmative social network. However, supplementation with breast milk substitutes during hospitalization (Lazzaro, Anderson & Auld, 1995), distribution of samples by hospital staff (Adair, et al, 1993), and availability of informational pamphlets developed by manufacturers of human milk substitutes (Valaitis, Sheeshka & O'Brien, 1997) are negatively correlated to lactation duration. The relationships of interpersonal dependency and perceived social support to breastfeeding duration seem to be unexplored.

This study is part of a larger study exploring a variety of factors affecting lactation duration including previous breastfeeding experience, perceived level of social support, and interpersonal dependency. The purpose of the study is to elucidate these factors in an attempt to suggest a new strategy for encouraging longer breastfeeding duration in mothers both with and without prior breastfeeding experience.

Review of the Literature

Hirschfield and colleagues refer to interpersonal dependency as an intertwining of behaviors, expectations,

opinions, and sentiments mutually relating to the individual's need to identify, interact, and commit with people he or she esteems. Interpersonal dependence, as used in this study, concerns the following three characteristics displayed by breastfeeding women: (a) emotional trust placed with another individual, (b) lack of social self-confidence, and (c) assertion of autonomy. Emotional trust is the value one places on interpersonal relationships, emotional closeness, and interdependence with another person. Assertion of autonomy is one's assessment of self and one's associations with others, including the evaluation of the bond with and dependence on one's significant other for love and reassurance. In contrast, lack of social self-confidence assesses the need to be directed by those in one's circle of influences and society in general. Those facing new situations such as parturition and lactation tend to exhibit these characteristics to some degree (Bornstein, Manning, Krukonis, Rossner & Mastosimone, 1993a).

Women who exhibit moderately high levels of interpersonal dependency are satisfied with the role of pleasing others in order "to obtain nurturance, guidance and support" (Bornstein, 1994). Those who display the common characteristics of interpersonal dependency (i.e., dependence, suggestibility, willingness to bend to the will of others, and compliance to group opinion) are often viewed negatively in our society (Bornstein, Krukonis, et al., 1993; Stiver, 1994). The degree of interpersonal dependency exhibited by the lactating woman may determine her need for social support and, in part, whether she accepts or rejects the support offered to her (Bornstein, Krukonis, et al., 1993; Bornstein, Manning, Krukonis, Rossner & Mastrosimone, 1993; Bornstein, Riggs, Hill & Calabese, 1996; Fetherston, 1995; Hirschfield, et al. 1977).

As used by Hughes (1984), social support refers to the following four characteristics: (a) communication of commitment, (b) faith and fondness, (c) chore-associated behavior, and (d) information exchange related to breastfeeding exhibited by a person or a group of people towards another person. It is pertinent to differentiate the requirements of breastfeeding women who vary in breastfeeding experience and social support networks in order to assist each woman as she pursues her personal breastfeeding goals (Lazzaro, et al. 1995).

An affirmative social support network comprised of family, friends, breastfeeding support groups and health

care providers has been found to be helpful in providing the aid required to increase breastfeeding duration (Isabella & Isabella, 1994; Kistin, Abramson & Dublin, 1994). McNatt and Freston (1992) studied 45 breastfeeding primiparous mothers to determine whether lactation duration was dependent upon perceived social support. They reported the size of the informational support network was directly related to the degree of reported breastfeeding satisfaction and perceived emotional support. Lack of social support may be an interceding variable in the mother's decision to supplement breastfeeding with breast milk substitute and ultimately to cease breastfeeding (Kistin, et al., 1994; Matich & Sims, 1992).

Research Questions

The following research questions were examined:

1. Is increased duration of lactation observed in experienced breastfeeding mothers attributable in part to enhanced social support?
2. How do the interaction of social support and the mother's level of interpersonal dependency influence lactation duration?
3. Are planned and actual infant feeding patterns similar among women with and without prior breastfeeding experience?

Methodology

Sample. From September 1995 to December 1996, 170 pregnant women (89 first-time and 81 experienced breastfeeding mothers) were recruited via screening forms from a private obstetric clinic and hospital-sponsored prenatal childbirth program. This group was composed of predominantly middle to upper class women living in a large Midwestern U.S. city. Interested women who met study criteria of having a healthy, singleton pregnancy and a maternal age between 18 and 40 years were included in the population for this study. The Institutional Review Board of the participating institutions approved this study.

Instrumentation. Questionnaires using the Hughes Breastfeeding Support Scale (HBSS) (Hughes, 1984) and the Measure of Interpersonal Dependency Scale (MIDS)

(Hirschfield, et al., 1977) were administered at approximately 6 weeks postpartum.

The HBSS, a self-report measure of social support, uses a 4-point Likert-type scale (1 = none at all; 4 = as much as I wanted) to rate 30 items related to the three areas of social support (informational, emotional, and instrumental), each of which is equally represented. Content and face validities of the HBSS have been previously established (Hughes, 1984; McNatt & Freston, 1992). Reliability information is available on the HBSS. The HBSS received corrected split-half scores 0.8543 (emotional), 0.8917 (informational), and 0.8500 (instrumental) based on 30 primiparous women using the Spearman-Brown Prophecy Formula (Hughes, 1984).

The MIDS, a self-report objective measure of dependency, uses a 4-point Likert-type scale (1 = disagree; 4 = agree) to rate 48 items related to emotional reliance on others (18 items), lack of social self-confidence (16 items), and assertion of autonomy (14 items). Construct validity of the MIDS test has been confirmed by Hirschfield and colleagues (1977). Based on 400 patients, the MIDS test received corrected half-scores of 0.87 (emotional reliance on another person), 0.78 (lack of social self-confidence), and 0.72 (assertion of autonomy) (Hirschfield, et al. 1977). The relationship among the three areas reached statistical significance ($p = 0.05$).

Data Analyses. A variety of statistical procedures was used in the data analyses of this study. Student's *t*-test was used to assess the differences between experienced breastfeeding mothers and inexperienced breastfeeding mothers in the area of perceived social support. Pearson's Product Moment Correlation Coefficient (PPMCC) was used to examine the correlation of social support with lactation duration. A two-way analysis of variance was used to investigate the effects of social support and interpersonal dependence on breastfeeding duration.

Procedure. Since the subject sample was not representative of the large Midwestern city used in the study, quota sampling was used in subject selection. Subjects were divided into two quota groups (those with and those without previous breastfeeding experience). All subjects had equal possibilities of being contacted until the quota was filled. A brief explanation of the study, an invitation to participate, and a consent form were pro-

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vided initially. Subjects were assured of complete confidentiality in every phase of the study and were not entered into the study until a signed consent form was received. During the last trimester of pregnancy, a telephone interview was conducted with each subject in order to collect demographic information. At approximately 4 weeks postpartum, questionnaires assessing social support and interpersonal dependency, along with a postage-paid, pre-addressed return envelope, were mailed to the subjects. Once the questionnaires were completed and returned, the participants were mailed a one-time \$25 stipend. Participants were contacted by telephone at 6 weeks, 3 months, and 6 months postpartum to determine length of lactation and infant feeding method.

Results

Of the 170 women enrolled in this study, three did not breastfeed (two without prior breastfeeding experience

and one with prior breastfeeding experience), 11 did not return complete questionnaires or could not be contacted for all interviews (six without prior breastfeeding experience and five with prior breastfeeding experience), two experienced the deaths of their infants (one without prior breastfeeding experience and one with prior breastfeeding experience), and one was ineligible for the study but was not eliminated until the data analysis phase was begun. The demographic characteristics of the 153 women who completed the study are described in Table 1.

Women with breastfeeding experience (mean age of 32 years) were significantly older than those women without breastfeeding experience (mean age of 27 years) ($p < 0.001$). The majority of the women ($> 95\%$) were Caucasian, and 90% had incomes greater than 200% of the poverty level. There was no statistical difference between the two groups in relation to ethnicity or income ($p > 0.05$). Prior to the current pregnancy, women with

Table 1 Demographic Characteristics of Women in the Study

Characteristic	No Previous BF Exp ^a % (n = 80)	Previous BF Exp % (n = 73)	Statistical Significance
Age			($p < 0.001$)
≤ 20 Years	11 (n = 9)	0 (n = 0)	
21–25 Years	29 (n = 23)	5 (n = 4)	
26–30 Years	40 (n = 32)	36 (n = 26)	
31–35 Years	15 (n = 12)	42 (n = 31)	
36–40 Years	5 (n = 4)	16 (n = 12)	
Race			NS ^b
Caucasian	95 (n = 76)	93 (n = 68)	
Black	3 (n = 2)	3 (n = 2)	
Indian/Alaskan	1 (n = 1)	1 (n = 1)	
Asian	0 (n = 0)	1 (n = 1)	
Hispanic	1 (n = 1)	1 (n = 1)	
Income			NS
< 22% of poverty level	86 (n = 69)	93 (n = 68)	
< 200% of poverty level	13 (n = 10)	7 (n = 5)	
Previous Children			NS
0	93 (n = 74)	0 (n = 0)	
1	4 (n = 3)	68 (n = 50)	
2	3 (n = 2)	18 (n = 13)	
3	1 (n = 1)	8 (n = 6)	
>3	0 (n = 0)	5 (n = 4)	
Education			NS
≤ High school diploma	16 (n = 13)	8 (n = 6)	
Some college/Bachelors degree	65 (n = 52)	71 (n = 52)	
Some postgraduate work	19 (n = 15)	21 (n = 15)	

^aBF Exp = breastfeeding experience

^bNS = not significant [$p > 0.05$]

^cOne subject refused to provide this information.

previous breastfeeding experience had from one to six children. Of these women, 70% had one child, and 18% had two children. At the time of the initial interview, 93% of the women without previous breastfeeding experience were expecting their first child, while 7% had one to three children at that time. Overall, 88% of the sample had completed at least some college. The attained education level of the subjects in the two groups was not statistically different, although women who breastfed tended to have had more education ($Z = -1.67$, $p = 0.09$; two-tailed test).

Prenatally, subjects were asked to describe their planned method of infant feeding (i.e., to provide breast milk exclusively or to provide a combination of breast milk and breast milk substitute) and their expected duration of breastfeeding. Seventy-three percent of first-time breastfeeding mothers and 61% of experienced breastfeeding mothers planned to breastfeed their infants exclusively. The difference between the two groups with respect to planned method of infant feeding was not significant ($p = 0.15$). Subjects with prior breastfeeding experience ($n = 73$) tended ($p = 0.15$) to plan to breastfeed longer than did those without prior breastfeeding experience ($n = 80$). Actual duration of lactation was significantly longer ($p = 0.001$) in those with previous breastfeeding experience compared to those with no breastfeeding experience. (See Table 2.)

Planned infant feeding practices were compared to actual infant feeding practices 6 weeks after the infant's birth. Forty percent of the mothers without prior breastfeeding experience and 75% of the mothers with prior breastfeeding experience achieved the breastfeed-

New breastfeeding mothers perceived they received significantly more total support than did experienced breastfeeding mothers . . .

ing goal they had made prenatally. Experienced breastfeeding mothers were significantly more likely to meet their breastfeeding goals than first-time breastfeeding mothers ($p = 0.026$). Mothers without prior breastfeeding experience who planned to offer a combination of human milk and breast milk substitutes to their infants were significantly more likely ($p = 0.03$) to provide breast milk substitutes by 6 weeks postpartum than those who planned to breastfeed exclusively ($p = 0.03$). However, for the experienced breastfeeding mothers, the planned method did not influence the introduction of human milk substitutes by 6 weeks postpartum ($p > 0.05$).

Perceived Social Support. New breastfeeding mothers perceived they received significantly more total support than did experienced breastfeeding mothers ($p = 0.033$). They also perceived receiving more task-oriented support ($p = 0.007$), emotional support ($p = 0.014$), and informational support ($p = 0.039$) than did experienced breastfeeding mothers.

Lactation duration was not significantly correlated to perception of total support ($p = 0.319$), emotional

Table 2 Comparison of the Planned and Actual Lactation Duration between Mothers with and without Previous Breastfeeding Experience

Planned Duration ^a	<3 Months	3–6 Months	>6 Months	Baby Led	Unsure
No Experience	15% (n = 12)	33% (n = 26)	43% (n = 4)	1% (n = 1)	9% (n = 7)
Previous Experience	5% (n = 4)	26% (n = 19)	51% (n = 37)	10% (n = 7)	8% (n = 6)

^a $Z = -1.92$, $p = 0.055$; two-tailed test

Actual Duration ^b	<3 Months	3–6 Months	>6 Months
No Experience	43% (n = 35)	15% (n = 12)	41% (n = 33)
Previous Experience	27% (n = 20)	16% (n = 12)	56% (n = 41)

^b $p > 0.001$

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There was no significant relationship between total reliance, assertion of autonomy, or emotional reliance and lactation duration.

support ($p = 0.428$), and task-oriented support ($p = 0.767$) among breastfeeding mothers. However, the correlating relationship between lactation duration and informational support ($r = 0.1960$, $p = 0.081$) approached significance for first-time breastfeeding mothers but not for experienced breastfeeding mothers ($r = -0.0983$, $p = 0.408$).

Interpersonal Dependency. There was no significant relationship between total reliance, assertion of autonomy, or emotional reliance and lactation duration. (See Table 3.) A significant inverse relationship between lactation duration and lack of social self-confidence ($r = -0.1777$, $p = 0.030$) existed among all breastfeeding mothers. (See Table 4.) In addition, there was a greater tendency ($p = 0.055$) for mothers who planned to offer both breast milk and human milk substitutes to their infants to have a greater lack of social self-confidence

Table 3 Correlation Coefficients for Interpersonal Dependency and Lactation Duration

Variable	r	p
Total Relationship	-0.1072	0.193
Emotional Reliance	-0.1261	0.125
Assertion of Autonomy	-0.1324	0.108
Lack of Social Self-Confidence	-0.1777	0.030

Table 4 Interpersonal Dependency Scores for Women Planning to Exclusively Breastfeed and for Women Planning to Provide a Combination of Human Milk and Milk Substitutes for Their Infants

Variable	Exclusively Breastfeed	Combination of Feeds	Statistical Significance
Emotional Reliance	39.40 +/- 6.88 ^a	40.85 +/- 8.88	NS
Assertion of Autonomy	27.02 +/- 5.25	27.17 +/- 5.84	NS
Lack of Social Self-Confidence	27.76 +/- 5.83	29.89 +/- 7.00	$p = 0.055$

^aMean +/- SD

NS = not significant [$p > 0.05$]

than those who planned to exclusively breastfeed their infants.

Discussion

The women who participated in this study were predominantly Caucasian, older, of mid- to upper socio-economic status, and well educated. These are the same characteristics typically associated with the highest incidence and duration of lactation (Adair, et al., 1993; Janke, 1993; Ryan, A., 1997). The sample was relatively homogenous in terms of demographic characteristics, in part because of the restrictions imposed by the study design. To be eligible, women had to plan to breastfeed. In addition, the choice of recruitment sites for the study, which included a private obstetric clinic and prenatal classes in the upper socio-economic area of a large city, may have contributed to the homogeneity of the sample. For these reasons, the findings of this study should not be generalized to all breastfeeding women.

Social Support. Inexperienced breastfeeding mothers perceived significantly more total support, task support, and informational support postnatally than did experienced breastfeeding mothers. Experienced breastfeeding mothers may have required less social support than first-time mothers (Maclean, 1989) because they were more aware that work unrelated to baby and child care would have to be accomplished imperfectly or not at all for a while. Further, they may have better understood the commitment required to breastfeed and knew what to expect (Maclean, 1989). Perhaps experienced breastfeeding mothers in the current study were not as concerned with receiving support and therefore were less receptive to its existence. Perceived social support may not be an important factor in relation to breastfeeding

behaviors of experienced breastfeeding mothers (Maclean, 1989).

Social Support, Lactation Duration, and Interpersonal Dependency. Overall, dependency characteristics and the need for approval and dependent attachment were similar in both groups in the present study. Hirschfeld and colleagues (1977) described emotional reliance as a nearly equal mix of trust and connectedness to a single other person, autonomy as the tendency to refuse to recognize one's dependency or attachment to others, and lack of social self-confidence as dependency on people. Women commonly feel drawn to relationships that promote mutual engagement, mutual empathy, and mutual empowerment and are less likely to strive for independence (Bornstein, et al., 1993; Stiver, 1994). It may be that the population in the current study was comprised of a group of highly independent women who may or may not be the norm in our country. The data also suggest that women who decide to breastfeed exclusively or in part are highly independent. However, it is yet to be determined whether those who decide to breastfeed are empowered women or whether the decision to breastfeed empowers women.

When divided according to infant feeding method (exclusive breastfeeding or combination of human milk substitute and breastfeeding), the scores on each scale of the interpersonal dependency inventory indicated that the groups were similar in the areas of emotional reliance and autonomy. There was, however, a tendency for mothers who planned to provide a combination of breast milk and breast milk substitutes to exhibit significantly less social self-confidence as compared to those who planned to breastfeed their infants exclusively. In order to remain in needed relationships, dependent people alter their behavior to conform to that of their perceived norm of their social support network (Pincus & Gurtman, 1995). Most women do not like to appear inadequate (Stiver, 1994). Perhaps mothers who provided a combination of breast milk and a human milk substitute used human milk substitutes in order to avoid embarrassment if they were not able, in their mind or in reality, to provide sufficiently for their infants. Conversely, women who provided a combination of breast milk and human milk substitutes may have preferred to provide artificial milk to their babies but have wanted to reap the benefits of breastfeeding, as well (Fetherston, 1995). Additional

research is needed to better characterize women who utilize a combination of infant feeding methods (Kiehl, Anderson, Wilson & Fosson, 1996).

The relationship between lactation duration and lack of social self-confidence found in this study suggested that as a woman's certainty in her ability to breastfeed without help increases, she will breastfeed longer. Some women find it difficult to request help because they do not want to seem demanding and selfish (Stiver, 1994). In addition, seeking help is seen by some women as a sign of submissiveness and incompetence (Piper & Parks, 1996). Confidence in the ability to breastfeed has been linked to lactation duration by others (Ryan, K., 1997). However, this study raised the following question: Do women with low breastfeeding confidence avoid initiating breastfeeding or offer a combination of breast milk and human milk substitute because they are self-conscious or need help? Perhaps mothers who exclusively breastfeed satisfy various dependency needs through the mother/infant bonding mechanism inherent with breastfeeding, whereas breastfeeding mothers who provide some artificial milk feeds and mothers who exclusively provide artificial milk feeds must try to find other ways to meet these inner desires and concerns.

Implications for Practice

In this study, mothers without previous breastfeeding experience perceived they received more total support, emotional support, task support, and informational support than did mothers with previous breastfeeding experience. The difference in perception of emotional support between the two groups approached significance. While not to be generalized for all breastfeeding women, these findings suggest the necessity for health professionals such as childbirth educators to recognize the individual need of their clientele in the prenatal period.

Women who breastfed exclusively were less likely to lack social self-confidence than were women who provided a combination of human milk substitutes and breast milk.

Women who breastfed exclusively were less likely to lack social self-confidence than were women who provided a combination of human milk substitutes and breast milk. A childbirth educator is instrumental in providing a positive influence for women who are planning to provide a combination of feeds. These women may need further information and emotional support to help them achieve their infant feeding goals. This ancillary finding also underscored the need to investigate further the differences between exclusive breastfeeding mothers and mothers offering a combination of human milk and breast milk substitutes. Those who provide information to women in the perinatal period and who encourage breastfeeding need to understand the factors contributing to enhanced self-confidence and breastfeeding duration.

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Saving the World

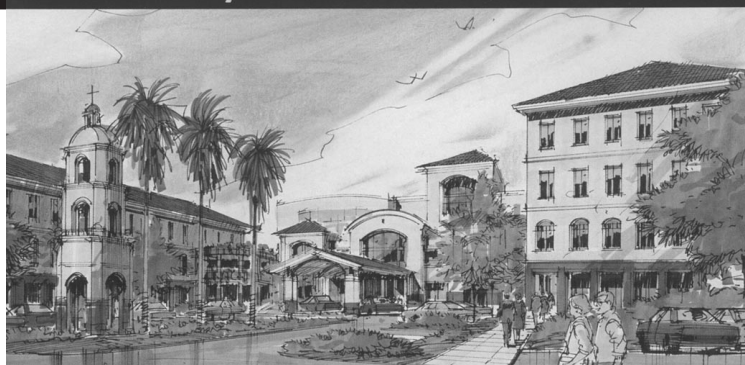
The instruction we find in books is like fire. We fetch it from our neighbors, kindle it at home, communicate it to others, and it becomes the property of all.

—Voltaire

I arise in the morning torn between a desire to improve (or save) the world and a desire to enjoy (or savor) the world. This makes it hard to plan the day.

—E. B. White

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