

Interruptions to Breastfeeding Dyads on Postpartum Day 1 in a University Hospital

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Objective: To describe interruptions (door openings and telephone calls) to breastfeeding dyads on postpartum day 1.

Design: A descriptive design of continuous observations of persons entering the mother's room plus record of phone calls from 8 a.m. to 8 p.m. on postpartum day 1.

Setting: Single bedded postpartum rooms in a tertiary level university hospital in northern Midwest United States.

Participants: Twenty-nine healthy mother-infant dyads of singleton birth who intended to breastfeed.

Outcome Measures: Frequency and duration of interruptions, number of episodes and duration of time alone, frequency and duration of breastfeeding sessions, and maternal perceptions of the day's activities and time with her newborn.

Results: Recorded interruptions totaled 1,555, yielding a mean of 54 interruptions each averaging 17 minutes in length. Half of the 24 episodes of time alone per dyad were less than or equal to 9 minutes; most commonly only 1 minute long. All mothers breastfed 2 to 10 times with an average duration of 20 minutes.

Conclusion: Many interruptions occurred and were perceived to negatively influence breastfeeding. *JOGNN*, 35, 709-716; 2006. DOI: 10.1111/J.1552-6909.2006.00095.x.

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Breastfeeding the newborn is the most important decision a mother can make for the current and future health and well-being of her infant (Lowe, 2004). Seventy percent of all women initiate this quintessential health promotion activity (Centers for Disease Control and Prevention [CDC], Department of Health and Human Services [DHHS], 2005), but an estimated 10% to 30% of the mothers initiating breastfeeding discontinue this feeding method by 14 days postdelivery (Ertem, Votto, & Leventhal, 2001) and by 6 months the number of women breastfeeding falls to 36.2% (CDC, DHHS). Because benefits of extended breastfeeding for both mother, for example, decreased postpartum bleeding (Labbok, 2001) and decreased risk of breast cancer (Collaborative Group on Hormonal Factors in Breast Cancer, 2002), and infant, for example, prevention of obesity (Division of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health Promotion, 2005), decreased incidence or severity of infectious diseases or both (Heinig, 2001) have been clearly demonstrated (American Academy of Pediatrics [AAP] Section on Breastfeeding, 2005; Leon-Cava, Lutter, Ross, & Martin, 2002; The LINKAGES Project, 1999); it is essential that hospital policies and environments are constructed to provide mothers optimal support in establishing breastfeeding. Many interventions to correct the deterrents to breastfeeding have been tried (Fairbank et al., 2002; Green, 1999; Shealy, Li, Benton-Davis, & Grummer-Strawn, 2005; Sikorski, Renfrew, Pindoria, & Wade, 2006); yet, breastfeeding rates continue to drop starting shortly after birth (CDC, DHHS). Thus, increasing the number of mother-infant dyads who are

breastfeeding remains a national goal of high priority (AAP Section on Breastfeeding; U.S. Department of Health and Human Services [U.S. DHHS], 2000a, 2000b).

While many factors are known to impede breastfeeding (U.S. DHHS, 1984, 2000a), informal observations made during a test of an intervention designed to increase breastfeeding initiation and success (Anderson, Chiu, Morrison, Burkhammer, & Ludington-Hoe, 2004) provided a new possible explanation for the lack of breastfeeding initiation and continuation throughout postpartum hospitalization. Many interruptions (persons entering the mother's room) occurred, making implementation of the intervention and performance of breastfeeding difficult. Mothers also reported decreased breastfeeding success in the presence of so many interruptions. Witnessing the interruptions and discovering a paucity of literature about postpartum interruptions led to the study reported here. Frequency and duration of interruptions, number of episodes and duration of time alone, and frequency and duration of breastfeeding sessions occurring on postpartum day 1 (PD1) to the healthy, full-term mother-infant dyad who had declared an intention to breastfeed were explored. Also analyzed were maternal comments entered at the end of PD1 in response to the written queries "How do you feel about the interaction and breastfeeding experiences with your baby today?" and "Did you and your baby have enough quiet/uninterrupted time together?"

Literature Review

Several studies and reports have identified hospital policies and practices that compromise breastfeeding initiation, such as scheduled feedings, supplementation after breastfeeding attempts and at night, encouragement of pacifier use, dissemination of discharge formula gift packs, and staff disruptions during breastfeeding for lab tests, physical assessments and other care requirements (Dennis, 2002; Martell, 2003). Further, mothers have identified the behavior of professional caregivers as an impediment to breastfeeding (Auerbach, 2000; DiGirolamo, Grummer-Strawn, & Fein, 2001). Health professionals invaded the mothers' personal space (Monzingo, Davis, Droppelman, & Merideth, 2000), provided conflicting advice (Gill, 2001; Monzingo et al., 2000), and did not provide breastfeeding help in a way mothers perceived as supportive (Gill; Martell, 2001). Mothers reported feeling rushed with feedings as staff hastily moved in and out of their rooms, creating the impression that they were eager to leave the mother (Monzingo et al.). When any of these health care behaviors occurred, efforts by staff to provide assistance were viewed as interruptions. Many of these nonsupportive practices continue despite heightened professional awareness (Humenick & Gwayi-Chore, 2001).

Experiences with breastfeeding in the first hours and days following birth significantly influence an infant's later feeding, but interruptions may negatively impact breastfeeding.

Beyond speculation in the 1984 *Report of the Surgeon General's Workshop on Breastfeeding and Human Lactation* that maternal interruptions may influence breastfeeding (U.S. DHHS, 2000a, p. 15), no systematic studies of interruptions to mother-infant dyads exist. However, data from neonatal intensive-care unit (NICU) studies in the 1970s and 1980s suggest that interruptions to infant patients are numerous, lengthy, and mostly caused by nurses (Blackburn, 1982; Duxbury, Henly, Broz, Armstrong, & Wachdorf, 1984). The findings of these studies led to many recommendations to promote rest and sleep in the NICU neonates: cluster care around the infants' level of arousal, place infants in confined spaces (nesting), decrease talking, and minimize interruptions due to unit activity (Blackburn, 1998).

Previous work testing Kangaroo Care (KC) effects on breastfeeding during PD1 (Anderson et al., 2004) revealed that mothers were unwilling to hold their infants skin to skin or to breastfeed because of a perceived lack of privacy due to interruptions. Interruptions also prevented mothers from having an opportunity to observe the emergence of feeding cues, observations that permit initiation of breastfeeding at the infant's and mother's pace (Monzingo et al., 2000). Continuation of feedings until successful completion was also disrupted by interruptions (Smith & Tully, 2001). If a nurse or caregiver was working with the mother, the interruptions also interfered with the support and instruction being provided by the health care staff. Clinical observations during the KC study revealed that interruptions occurred to provide nursing care, respond to the mother's call light, complete birth certificate forms, take infant pictures, deliver flowers, visit mother, provide water and supplies, empty wastebaskets, pick up menus and food trays, and take the infant to the nursery for examination, circumcision, rewarming, or lab work. Informal assessment of the interruptions revealed that the interruptions were numerous: 19 times in 3 hours for one mother and 6 times in 1 hour for another. The interruptions seemed to take place irrespective of the mother's or infant's needs and took precedence over breastfeeding. Systematic evaluation of the number and nature of interruptions was needed to determine what role, if any, interruptions play in maternal-infant breastfeeding initiation

and continuation. The study reported here focused on the frequency and duration of interruptions.

Methods

Design

An exploratory study of continuous observations of a mother's hospital room door for 12 consecutive hours (from 0800 to 2000) on PD1 was conducted to document the frequency and duration of interruptions (door openings accompanied by a person entering the room) to the mother-infant dyad. Incidence of phone calls was also monitored as an additional source of interruptions. Each time an interruption occurred it was manually recorded. Observers changed every 4 to 6 hours to prevent fatigue. Interrater reliability between the six raters was 95% as established by percent agreement and maintained by retesting after every fifth subject. University and hospital IRB approvals were obtained.

Setting

The study took place in a level 3 (large NICU admitting newborns regardless of diagnosis or gestational age and as early as 22-23 weeks) university hospital postpartum unit in the northern Midwest United States. The maternity hospital averaged over 3,500 term births each year, and the postpartum unit accommodated 38 patients in private rooms. Twenty-eight RNs (mean of 11.25 years of postpartum experience) provided patient care and breastfeeding support. Each day seven RNs and four or five patient care associates cared for patients, yielding a ratio of one RN to three or four mother-infant dyads. A lactation consultant was available, but the majority of breastfeeding teaching and support was provided by RN staff. Staff, students, and visitors had unlimited access to mothers throughout the study.

Subjects

Mothers of all races and ethnicities who met the following criteria were eligible: (a) declared intent to breastfeed as noted in the medical record at the time of transfer from the delivery suite, (b) were at least 18 years of age, (c) spoke English without difficulty, (d) uncomplicated pregnancy, (e) vaginal singleton birth at term (38-42 weeks gestation), and (f) healthy newborn who was rooming-in. Mother-newborn dyads were excluded if the mother declared an intent to bottle-feed or the newborn was unable to room-in with the mother at all times throughout the study day. A list of all mothers who met the criteria was given to the research assistant each day. Generally, one to three potential subjects were available. The names of the potential subjects were placed in a hat, one name was randomly withdrawn, and this mother was approached. If the mother declined, another name was withdrawn

and this mother was approached. Complete data sets were obtained from 29 mother-infant dyads, sufficient to estimate representation of the population of mother-infant dyads on the unit. Each dyad provided 12 hours of data.

Outcome Measures

An "interruption" was each person (including the father) who entered the mother's room or an incoming phone call. If one person entered, one interruption was recorded; if a second person entered simultaneously with the first, two interruptions were recorded, and so forth. Each person was considered an interruption because the mother had to acknowledge and deal with each person. "Total number of interruptions" was the summed total of the number of people entering the room plus the number of incoming phone calls. "Duration of an interruption" was the number of seconds from the time the person entered the room until that person left the room. "Time alone" was an episode (measured in minutes) when mother plus father of the baby (FOB) plus infant, or any combination thereof, were in the room alone. A "breastfeeding session" was the placement of the infant at the breast as recorded in the "mother's daily log". "Duration of a breastfeeding session" was calculated from the starting and finishing times of each breastfeeding session as recorded in the mother's daily log.

Instruments

The "data collection form" was a grid in which time and duration of the interruption were recorded by the research assistant. The mother's daily log was a five-column grid on which the mothers could record time, interrupter, reason for interruption, and occurrence and duration of incoming phone calls. Mothers were asked to record each and every interruption as the day proceeded so a record of telephone calls would be available. The "end of day" questionnaire consisted of two open-ended questions regarding the mothers' perceptions of the day's activities and their time with their newborn.

Procedure

Following written consent, a research assistant sat in a chair in the hallway opposite the mother's door so she would have a clear view of all who were entering and of the call light. Starting at 8 a.m., each time a person (or persons together) entered the room, the time was recorded on the data form and a stopwatch (Ultrak 495) was activated to count the duration of the interruption. After 4 to 6 hours, another research assistant took over. At 8 p.m., the research assistant entered the mother's room, had her complete the end of day questionnaire, collected the mother's daily log, thanked her for participating in the study, and gave her a receiving blanket as a thank you gift.

Analysis Plan

Entries from the data collection form and mother's daily log were matched by time and by person and combined to formulate a complete data set of each interruption, each person causing the interruption, reason for the interruption, and time and length of each phone call. Measures of central tendency were then calculated.

Results

Thirty-one mothers consented to participate in the study, and 29 complete data sets were obtained; protocols for two dyads could not be completed, because research assistants were unavailable. Mothers averaged 29.24 years old ($SD = 5.71$, $R = 20-42$ years) and 15 completed years of education ($SD = 1.83$, $R = 12-17$). Fourteen of the mothers were primiparous; 14 of the 15 multiparous women had previously breastfed at least one child for an average of 39.68 weeks ($SD = 27.78$, $R = 3-96$ weeks). Other demographic variables are summarized in Table 1.

Sample demographics were similar to those in other studies in which mothers who initiated breastfeeding were older, married, better educated, and had higher family incomes (Callen & Pinelli, 2004; Polhamus et al., 2004). The 14 mothers who had previously breastfed persisted well past the 6 months recommended by the *Healthy People 2010* objectives (U.S. DHHS, 2000b) and by the AAP Section on Breastfeeding (2005), though exclusivity of the breastfeeding is unknown. The multiparous mothers demonstrated a strong commitment to breastfeeding.

An average of 54 interruptions occurred to the breastfeeding dyad on PD1.

Frequency of Interruptions

A total of 1,555 interruptions were recorded after combining the research assistants' observations and the phone calls present on the mother's daily log (Table 2). Each mother-infant dyad experienced an average of 54 interruptions during the 12-hour observation period or a mean of 4.5 interruptions per hour. Mean duration of each interruptions was 17 minutes. Interruptions ranged from a 1-second peak in the door to 7.9 hours. Half of the interruptions lasted 3.25 minutes or less. The majority of the interruptions were by the primary RN and personal care assistants followed by the FOB and visitors (Table 3). Detailed descriptions of the interrupters and the reasons for interruptions are reported else where (Morrison, 2006).

TABLE 1
Frequency and Percentage Occurrence of Demographic Variables Describing the 29 Subjects Completing the Study

Demographic Variable	Category	Frequency	Percentage
Race	Black	5	17.2
	Asian or Pacific Islander	3	10.3
	White, non-Hispanic	21	72.4
Employment status	Full time	10	34.5
	Part time	10	34.5
	Unemployed	9	31.0
Gross household income	<\$10,000	1	3.4
	\$10,000-\$19,999	3	10.3
	\$20,000-\$29,999	3	10.3
	\$30,000-\$39,999	2	6.9
	\$40,000-\$49,999	3	10.3
	>\$50,000	17	58.6
Relationship with FOB	Married, living together	23	79.3
	Living with FOB, not married	3	10.3
	Not married, involved, living elsewhere	3	10.3
Number of previous live births	Zero	14	48.3
	One	11	37.9
	Two to four	4	13.7
Previous breastfeeding experience	Yes	14	48.3
	No	15	51.7
Gender of infant	Female	16	55.2
	Male	13	44.8

Note. FOB = father of the baby.

Time Alone

Mothers and their families experienced 691 episodes of time alone ($M = 24$ episodes per family), which lasted an average of 15 minutes ($R = 1-111$). Half of the episodes alone were 9 minutes or less (median) with 1 minute being the most common (mode) duration.

Number of Breastfeedings

The mother-infant dyads breastfed (feeding attempts + complete feedings) 154 times during PD1 ($M = 5$). All mothers breastfed 2 to 10 times on PD1. Though 154

TABLE 2

Postpartum Day 1 Interruptions, Episodes of Time Alone and Breastfeeding Sessions From 8 a.m. to 8 p.m.

<i>Experience</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
Interruptions	1,555	54	±9.6	35-73
Duration of interruptions (min/hr)	1,555	17 min	±37.7 min	<1-7.9 hr
Episodes of time alone	691	24	±7.98	4-38
Duration of episodes of time alone (min)	691	15	±16.8	1-111
Breastfeeding sessions	154	5	±1.98	2-10
Duration of breastfeeding sessions (min)	139	20	±12.61	<1-90

breastfeedings were recorded as having occurred, complete data on start and ending times was available for only 139 sessions. Thus, the average *duration* of the 139 breastfeedings was 20 minutes, even though some sessions were recorded as 0 minutes in length because the infant was put to breast and immediately removed when someone entered the room.

Query 1. “How do you feel about the interaction and breastfeeding experiences with your baby today?” Twenty-eight of the 29 mothers provided short responses of which the following are representative: “There were many interruptions throughout the day. When breastfeeding was attempted it went well with her latching on well”, “They [breastfeeding sessions] were good, but it was hard having visitors; probably would have done it [breastfeeding] more. Tried to squeeze it in when visitors left,” “Not too many visitors, but the phone calls did make it harder to concentrate on the baby. The nurses’ visits helped because they showed me different techniques,” and “He’s wonderful. He’s been very tired—not very interested in nursing. I have tried every 2-3 hours but only succeeded two times.”

Query 2. “Did you and your baby have enough quiet/uninterrupted time together?” Common responses were: “I had a very busy day and though I do feel I gave a lot of time and spent a lot of time together, I did feel very pressured,” “Wish we had more [alone time]. Both baby and myself were tired and I wanted to sleep with her. But every time I tried, we got interrupted,” “I felt like someone was constantly interrupting us and when we were able to

breastfeed I felt rushed and worried that someone else would be coming in soon,” “Seemed that people kept interrupting at bad times—bad timing, so I felt rushed, not as relaxed as I needed to be. Always something wrong” and “Yes we did. I was interrupted a lot though.”

Discussion

The number of interruptions experienced by each mother-infant dyad was remarkably high. Although the average length of the interruptions was 17 minutes, many interruptions were only 1 to 3 minutes in length but occurred repeatedly throughout the day. While the current study took place during daytime hours and on a postpartum unit, the findings are similar to studies of nocturnal disturbances in other hospital units (Southwell & Wistow, 1995; Tamburri, DiBrienza, Zozula, & Redeker, 2004). Meyer et al. (1994) concluded, “Patient interruptions tended to be [frequent and] erratic, leaving little time for condensed sleep” (p. 1215). In our study, the interruptions were so frequent, erratic, and lengthy they left little time for rest or relaxed breastfeeding sessions.

“I felt like someone was constantly interrupting. When we were able to breastfeed I felt rushed and worried that someone else would come in soon.”

The amount of time that mothers or families had as time alone was minimal, with half of the time alone episodes being 9.0 minutes or less. This meant mothers had very little time alone to rest, feed their infant, or take care of themselves. Martell (2001) in her qualitative descriptive study of the contemporary postpartum experience proposed that part of the process of “heading toward a new normal” (p. 496) as a new family was “settling in” (p. 500) and “delineating family boundaries” (p. 502). In order to accomplish these processes, mothers desired privacy and an intimate atmosphere. The frequent interruptions and minimal time alone while mothers are in the hospital may jeopardize the initiation of these processes and the establishment of maternal confidence and competence. These qualities come from an awareness of the significance of their newborns’ behaviors and the realization of how their newborns thrive on maternal feeding and care (Martell). Martell suggested that “giving mothers time and privacy to focus on themselves may be as helpful as a teaching session” (p. 503). Although the current study documents the frequency and duration of interruptions

TABLE 3

Identity of Persons Entering the Room and Frequency and Percent of Interruptions by Each Interrupter for the 1,555 Interruptions Occurring on Postpartum Day 1

<i>Person Doing the Interrupting</i>	<i>Frequency</i>	<i>Percent of Total Number of Interruptions</i>
Primary RN	340	21.9
Patient care associate	195	12.5
Father of newborn	154	9.9
Visitors	140	9.0
Dietary	136	8.7
Grandparents and siblings	125	8.0
Physicians and nurse-midwives	109	7.1
Incoming phone calls	114	7.3
Other nursing staff	72	4.6
Miscellaneous ancillary staff	48	3.1
Photographer	46	3.0
Housekeeping	44	2.8
Other	32	2.1

during the first postpartum day, further studies are needed to establish the impact of the interruptions on settling in and the establishment of family boundaries and maternal confidence and competence.

The number and length of breastfeeding sessions appears quite similar to data presented elsewhere (de Carvalho, Robertson, Friedman, & Klaus, 1983; Salariya, Easton, & Carter, 1978) and to recent policy recommendations (AAP Section on Breastfeeding, 2005; Shealy et al., 2005), a finding that one might consider unexpected because of the number of interruptions and little time alone that mothers have. If, however, these interruptions and time alone are typical of most mother-baby units, such a finding would not be surprising though one might question how effective and successful the breastfeeding sessions are. Normative data are not available at this time because this is the first reported study of interruptions and time alone. Although this study did not evaluate the relationship between interruptions and maternal perception of success and satisfaction with the breastfeeding experiences, these are important issues that should be explored in future studies.

Mothers' comments in response to the questions about how they felt with their interactions with the baby and their breastfeeding experiences revealed that the majority of mothers felt rushed in their breastfeeding efforts. In response to the query about having enough quiet and uninterrupted time with the baby, mothers felt they were

constantly interrupted. Though this latter question was leading, the results echo the findings of other studies of the postpartum environment. Mothers interviewed by Martell (2003) and Monzingo et al. (2000) reported feeling rushed when they were trying to breastfeed because they were unsure when the next person would enter the room and "violate their personal boundaries" (Martell, 2003, p. 481). Fathers had similar impressions of the postpartum environment. The following quote from a father was presented by de Montigny and Lacharite (2004):

I wanted to see my friends; I wanted them to see the baby and my spouse. But it was difficult to determine a good time for a visit. During a feeding, it's not a good time. After a feeding is not a good time, also, because we need a rest. And then nurses had work to do. It never seemed to be a good time (p. 333).

The "hubbub of activity of the modern hospital" (Lawrence & Lawrence, 1999, p. 252) is a stark contrast to the hospital environment of the 1970s and 1980s when the studies were done that led to the recommendation to breastfeed 8 to 12 times per 24 hours (de Carvalho, Robertson, & Merkatz, 1982; Yamauchi & Yamanouchi, 1990a, 1990b). In those years, visitors and visiting hours were more restrictive and rooming-in was just being implemented as the model of postpartum care (Murray, McKinney, & Gorrie, 2002). To comfortably and successfully breastfeed four to six times for 10 to 15 minutes per breast during daytime hours, as recommended by Lawrence and Lawrence, mothers need to feel relaxed with their modesty protected (Moran, 1999) and be able to breastfeed whenever the newborn awakens spontaneously and exhibits early hunger cues, a self-regulatory interaction (Anderson, 1977, 1989). Given the frequency and unpredictability of interruptions and episodes of time alone, it may be difficult to establish an atmosphere in which mothers can successfully breastfeed. Additionally, these frequent interruptions and the minimal time alone may compromise the breastfeeding process that requires adequate time between feedings for mothers to rest and build up the milk supply, energy, and alertness needed for the subsequent feeding.

Clinical Implications and Limitations

Nurses may be informed by the data reported here but need to be cautious in applying the results because the interruptions described above were observed in a tertiary university setting, and these may differ from interruptions in other settings. Caution is also advised because the relationships between interruptions and breastfeeding initiation, duration, and success have not been established, a necessary step prior to interventions being developed and tested. Because maternal breastfeeding was not directly observed, the impact of interruptions on breastfeeding can

only be inferred from the mothers' answers to the questions posed in this study. In addition, queries to mothers in the future should be phrased as open-ended and less directed questions to minimize the chances of mothers answering in socially acceptable ways rather than saying how they really feel. However, the data presented here can serve to heighten nurses' awareness of the likelihood that mothers are experiencing far too many interruptions and far too few episodes of time alone with their newborns.

Nurses should be creative in discovering methods to allow the breastfeeding experience to evolve uninterrupted. Anecdotal data from several hospitals suggest that instituting "nap times" or "do not disturb times" have been very well received by mothers and have improved their ability to breastfeed their infants at night. Other postpartum units have "do not disturb" signs, which mothers can choose to display on their doors. Some units have multiple lights used to indicate when the nurse or infant is in the room. One of the lights could be designated as a do not disturb signal when it is on. Mothers also need to know they have the option to have their phone calls held or to have visitors check at the desk to ascertain whether the mother is available before proceeding to her room. Signs could also be posted in the elevators or on the unit entry doors asking visitors to keep their visits short because mothers and infants need their rest. Evidence about the effectiveness of any of these interventions is still needed. Nonetheless, this study demonstrates that PD1 on at least one postpartum unit is fraught with interruptions and lacking in privacy for mothers who have chosen to breastfeed and that the mothers find this distressing. Nurses can use this information now to become sensitive to these needs and issues if they exist on their postpartum units and to realize that addressing such needs is likely to facilitate the breastfeeding process.

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