PROVISION OF SUPPORT STRATEGIES AND SERVICES – A COMPARISON BETWEEN PAID AND VOLUNTEER BREASTFEEDING PEER COUNSELORS

by

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(Under the Direction of Alex Kojo Anderson)

ABSTRACT

The purpose of this study was to understand the determinants of optimal provision of support by breastfeeding peer counselors (BFPCs). The specific aims of this project were to determine if there is a difference in the extent of breastfeeding support provided by paid versus volunteer BFPCs and if training is different between these two groups. Participants (n = 847) in this cross-sectional internet-based survey were mostly White/Caucasian (74.9%), college-educated (59.0%), and paid BFPCs (63.8%). Full-time paid BFPCs were more likely to utilize support strategies such as referring clients to social service agencies (OR = 13.18). Because of the disparities in BFPC training and utilization of breastfeeding support between paid and volunteer BFPCs, there is a need for standardization of BFPC training curricula and continuing education requirement.

INDEX WORDS: Breastfeeding peer counselor, Peer counselor, Breastfeeding, Online survey, Breastfeeding support

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DEDICATION

This work is dedicated to my family for "getting through" these last two years. And to Clara and Andrew for staying up with me so many nights pulling everything together, and understanding when "Nanny" had to be out of town. Thank you all for your love, support, company, patience and understanding.

Finally, this work is especially dedicated to the memory of Buddy, the most handsome, smartest, sweetest, kindest, gentlest, most patient, most understanding, most caring, and most loving fellow in the entire world. You were the light of my family's life for seven and a half years and left us too soon. I am so thankful to have known your sweet spirit and will never forget you. I am happy that you are in a place where you can no longer be hurt.

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CHAPTER 1

INTRODUCTION

Breastfeeding is the optimum form of nutrition for infants; therefore the American Academy of Pediatrics recommends exclusive breastfeeding until six months of age and continued breastfeeding until one year or older (1, 2). The Department of Health and Human Services also established breastfeeding goals in *Healthy People 2010* as part of the Maternal, Infant, and Child Health objectives in order to promote the health benefits of breastfeeding (3). The targets for breastfeeding were 75% initiation, 50% breastfeeding at six months, and 25% breastfeeding at one year (3). According to a report by the Centers for Disease Control and Prevention (CDC), Americans did not meet these breastfeeding goals as of the midpoint review in 2006 (3, 4). Among low-income women participating in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), the rates of initiation and duration of breastfeeding are even lower than the overall total population (67% vs. 74% initiation, 33% vs. 43.4% continued breastfeeding at 6 months, and 17% vs. 22.7% continued breastfeeding at 12 months) (3, 5). Although the Department of Health and Human Services initially planned to retain these targets in their *Healthy People 2020*, the agency decided to increase the goals for breastfeeding to 81.9% initiation, 60.6% continued breastfeeding at six months, and 34.1% continued breastfeeding at one year with the hope that higher targets and additional promotional efforts will increase breastfeeding rates (6, 7).

Innovative programs, such as breastfeeding peer counselors (BFPCs), may increase rates of initiation, exclusivity, and duration of breastfeeding, especially among low-income or minority women (8, 9). In a comprehensive review of nine studies of BFPC programs, Rossman (2007) found that three showed a significant increase in exclusive breastfeeding, five significantly increased breastfeeding initiation rates, and seven showed a significant increase in duration of

breastfeeding (10). Most recently, Chapman et al (2010) reviewed several studies of breastfeeding peer counseling programs, dividing the interventions into high intensity and low intensity based on number and type of contacts (11). Overall, Chapman et al concluded that peer counselors are effective in increasing rates of breastfeeding initiation, duration, and exclusivity, especially if the interventions are high intensity (11).

Indeed, many peer counselor programs increase rates of breastfeeding initiation, duration or exclusivity; however, other programs do not (10, 11). This discrepancy may be due to certain program characteristics or training of BFPCs. This research project seeks to examine the relationship among employment status (paid versus volunteer), extent of training, and use and intensity of various breastfeeding support techniques through the utilization of an innovative online survey that enables collection of information across training programs and geographic locations.

Chapter 2 provides a review of the literature regarding breastfeeding as the optimal form of nutrition for infants, barriers to breastfeeding, and risk for early cessation. In addition, the chapter examines peer education in general, as well as the roles and training of breastfeeding peer counselors. A review of several breastfeeding peer counseling programs, noting their effectiveness in supporting increased rates of breastfeeding, is also included. Finally, this chapter examines the issues of reliability and validity associated with use of an online survey.

Chapter 3 is a manuscript to be submitted to the *Journal of Human Lactation*. It includes the methods, results, and discussion of the key findings from the survey of breastfeeding peer counselors across the United States.

Chapter 4 provides a summary of the key findings from the survey, as well as recommendations for future research and development of standardized training curriculum for breastfeeding peer counseling programs.

CHAPTER 2

LITERATURE REVIEW

Breastfeeding as Optimum Nutrition for Infants

Human milk is tailored to meet the nutritional needs of the infant with a changing composition from day to day, as well as throughout the day (2). The macronutrients, vitamins, and minerals in breast milk are easily digestible by the infant's immature gastrointestinal tract and tend to have greater bioavailability compared to nutrients in formula. The relatively low concentration of protein and electrolytes in human milk results in a reduced solute load that is more easily handled by the infant's kidneys compared to cow's milk-based formulas. In addition, breast milk provides other beneficial compounds, such as the mother's immunoglobulins, that improve the infant's immune function (2). Breastfeeding is associated with a reduction in risk for many diseases, such as otitis media, lower respiratory tract infection, gastroenteritis, and asthma (2). In addition, Martens et al found that not breastfeeding increased the risk of an infant being readmitted to the hospital post-discharge by 65% (12). Indeed, breastfeeding may confer many health benefits to the infant and perhaps reduce healthcare-related expenses and emotional distress.

Several studies have also reported that breastfeeding is associated with improved cognitive function (2, 13). In a study by Morrow-Tlucak et al (1988), the researchers found that infants who were breastfed for more than four months scored higher on the Mental Development Index of the Bayley Scales compared to their bottle-fed counterparts at both one year and two years of age (121.3 $\pm$ 8.6 vs. 111.2 $\pm$ 15.7, $P = 0.041$, and 113.8 $\pm$ 22.6 vs. 99.9 $\pm$ 15.3, $P = 0.025$) (14). Likewise, Kramer et al (2008) showed through followup of participants in the Promotion of Breastfeeding Intervention Trial (PROBIT) in Belarus that children in the experimental group (breastfeeding) scored higher than their control group (non-breastfeeding) counterparts on the Wechsler

Abbreviated Scales of Intelligence (WASI) in vocabulary (53.5 ± 11.6 vs. 46.9 ± 11.4), similarities (56.6 ± 9.9 vs. 50.7 ±11.7), and full-scale IQ (109.7 ± 15.4 vs. 101.9 ± 15.8). In addition, teachers rated the experimental group higher in reading and writing performance (13).

Breastfeeding Objectives of Healthy People 2010 and 2020

Because research has shown that breastfeeding offers significant nutritional and immunological benefits to the health of the infant, the United States Department of Health and Human Services established objectives for rates of breastfeeding in the *Healthy People 2010* as a means for closing the gap in health disparity between different racial/ethnic groups (3). The goal for initiation of breastfeeding was set at 75%, and the goal for continuation of breastfeeding at six months of age was set at 50%. The goal for continuation of breastfeeding until twelve months of age or longer was set at 25% (3). In addition, the recommendations were revised to include goals for exclusive breastfeeding at three months of age (40%) and exclusive breastfeeding at six months of age (17%) (2). These objectives were increased in *Healthy People 2020* (81.9% initiation, 60.6% continued breastfeeding at six months, and 34.1% continued breastfeeding at one year) despite these goals not being achieved under the *Healthy People 2010* objectives (7).

According to a report by the Centers for Disease Control and Prevention (CDC), Americans did not meet the breastfeeding goals of Healthy People 2010 as of the midpoint review in 2006 (4). Only 28 states met the objective for initiation of breastfeeding at hospital discharge, and 13 states met the objective for continuation of breastfeeding at six months of age per the 2007 National Immunization Survey. A total of 10 states met all five objectives for breastfeeding set forth in *Healthy People 2010* (15). According to a study by Ahluwalia et al (2003), initiation of breastfeeding increased from 57.0% to 67.5% from 1993 - 1998 per data from the Pregnancy Risk Assessment and Monitoring Survey (PRAMS) (16). In addition, there was an increase in rates of initiation among the following groups who usually have the lowest rates of breastfeeding: women who were black, mothers younger than 20 years of age, mothers with less than a high school education, unmarried

mothers, and mothers who participated in WIC or Medicaid. However, several of these groups also showed a decline in overall breastfeeding duration (16). Indeed, among low-income women participating in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), the rates of initiation and duration of breastfeeding are even lower than the overall total population (67% vs. 74% initiation, 33% vs. 43.4% continued breastfeeding at 6 months, and 17% vs. 22.7% continued breastfeeding at 12 months) (4, 5).

Cost Savings of Breastfeeding

Research has shown that breastfeeding is associated with a reduced risk of several acute and chronic diseases, such as otitis media and asthma (2). In a study by Bartick and Reinhold (2010), the estimated savings for 90% compliance with the recommended duration of breastfeeding by the American Academy of Pediatrics (exclusive breastfeeding for six months and continued breastfeeding for twelve or more months) was calculated to be approximately $13 billion with 911 deaths averted annually (1, 17). Researchers estimated costs associated with otitis media, gastroenteritis, necrotizing enterocolitis, hospitalization for lower respiratory tract infection, atopic dermatitis, sudden infant death syndrome (SIDS), childhood asthma, childhood leukemia, type 1 diabetes mellitus, and obesity (17). The odds ratio for developing otitis media with any amount of breastfeeding was 0.77 and 0.5 with exclusive breastfeeding for three months, resulting in a cost-savings of $291 per episode as estimated by the Agency for Healthcare Research and Quality (17, 18). In addition, the odds ratio for developing gastroenteritis was 0.36 with exclusive breastfeeding for six months, with a cost-savings of $2668 per hospitalization (direct and indirect costs) as estimated by Zimmerman et al (2001) (17, 19). Finally, the odds ratio for SIDS was 0.64 with any breastfeeding for six months, resulting in a cost-savings of $10,560,000 per death averted, estimated by using the labor-market approach (17). Indeed, the cost-savings would be substantial ($2.2 billion) if the objectives in *Healthy People 2010* were met (17).

Barriers to Breastfeeding

Despite the number of health benefits and potential cost-savings of breastfeeding, many women, especially minority and lower-income mothers, do not initiate or continue breastfeeding for the recommended amount of time (4, 5). Several barriers to initiation have been identified, including the mother's decision to return to work, lack of support from family members (especially partners), feelings of embarrassment about breastfeeding, particularly in public settings or in front of friends and family, and fear of discomfort or the inability to successfully breastfeed (2, 20). In a study by Ogbuanu et al (2009), 57.4% of black women did not initiate breastfeeding because they did not like breastfeeding (although they had never breastfed) compared to 45.9% of white women. In addition, 3.4% of black women, 5.3% of white women, and 11.9% of Hispanic women reported not initiating breastfeeding because of an unsupportive husband or partner (20). Of the mothers who chose not to initiate breastfeeding for "other" reasons, 18.6% of black women compared to 4.8% of white women cited pain, fear or stress as a deterrent. Finally, hospital support characteristics also influenced initiation of breastfeeding. Of the mothers reporting being given a phone number for help, 74.2% initiated breastfeeding compared to 25.8% of mothers who were not provided a breastfeeding helpline number. Also, 92.0% of mothers who reported that hospital staff helped them learn to breastfeed initiated breastfeeding compared to 26.9% who were not helped by staff (20).

Therefore, it is imperative that hospital nurses and staff promote and support breastfeeding as the norm for infant feeding. This idea underlies the World Health Organization and UNICEF *Baby-Friendly Hospital Initiative*, a certification program consisting of the Ten Steps to Successful Breastfeeding for Hospitals (21). The first step is to communicate a written policy on breastfeeding to all hospital staff. The nurses and other healthcare team members must also receive training in the skills necessary to promote the breastfeeding policy (step two) and to educate all expectant mothers about the benefits and management of breastfeeding (step three). Hospital staff should assist new

mothers in initiating breastfeeding as soon as possible after birth, preferably within one hour (step four) and help mothers maintain lactation even while separated from their infant (step five). This practice is especially important for premature infants or others with health conditions that require transfer to the neonatal intensive care unit (NICU). Hospital staff should respect the breastfeeding infant by offering no food or drinks other than breast milk (unless medically indicated), and should allow mothers to room-in with their babies in order to encourage breastfeeding on demand to help the mothers build their milk supply (steps six, seven, and eight). In addition, the baby should not be offered pacifiers or artificial nipples or teats in order to promote proper latch and suckling at the breast (step nine). Finally, all hospital staff should encourage the development of breastfeeding support groups in order to assist new mothers in having a successful breastfeeding experience (step 10) (21).

There are relatively few certified "baby-friendly" hospitals and birth centers within the United States, with only ninety-seven recorded as of September 1, 2010 (22). Many hospitals may meet particular steps in the process, such as having a written breastfeeding policy, but may not perceive that the staff can comply with all ten steps. Training may increase the hospital care team members' motivation and sense of self-efficacy in promoting and encouraging breastfeeding mothers. In a study by Martens et al in the South Eastman Regional Health Authority (Canada), staff members at two hospitals participated in a breastfeeding educational workshop (23). In both hospitals, the Baby Friendly Hospital Initiative (BFHI) compliance score increased (34.6 to 38.1 and 29.8 to 33.5), especially concerning steps 1, 3, 7, 9, and 10. Overall, the nurses felt that they had developed adequate skills in order to assist breastfeeding mothers and were more aware of their hospital's breastfeeding policy (23). Similarly, Martens found that a one and a half hour in-service training session with an optional written tutorial significantly increased BFHI compliance and breastfeeding belief scores at an intervention hospital but not at the control site that did not receive training (24).

Another barrier to breastfeeding involves the cultural norms of a population in regards to both breastfeeding and bottle feeding. In a prospective study of pregnant women in four southern Manitoba First Nations Communities where breastfeeding rates were typically lower than the other Canadian provinces, Martens found that women perceived their coworkers, brothers, fathers, and male partners neutrally supportive of their decision to breastfeed (25). Only their own mothers, doctors, and nurses were supportive of breastfeeding. In addition, over half of the women had decided on infant feeding method before their third trimester, but less than half (42%) had received prenatal instruction about breastfeeding. The authors concluded that there is a window of educational opportunity to encourage pregnant women to choose breastfeeding, but breastfeeding as an acceptable cultural norm must be promoted among adolescents in order to begin building a circle of support among future friends, coworkers, and male partners (25).

In order to address this barrier, Martens tested a pilot program at Sagkeeng Junior High School in Sagkeeng First Nation, Manitoba, Canada, in which 7th and 8th grade students participated in a special class to promote breastfeeding (26). The educational encounter included a ten-minute video about breastfeeding, as well as a discussion with a breastfeeding peer counselor. All students completed the pre-test to assess attitudes and beliefs about breastfeeding and bottle feeding. Students were then randomized into an experimental and a control group. The experimental group participated in the breastfeeding educational session and then completed the post-test. The control group participated in a political educational session about hydroelectric energy and then completed the post-test. The two groups then participated in the alternative session so that all students were exposed to the breastfeeding information. Both groups completed the retention test ten days later. In breastfeeding belief score, the experimental group showed a significant increase from pre-test to post-test (12%), but the control group did not (0.5%). Both groups showed a significant increase of 8% from pre-test to retention test. Male scores in both groups remained relatively stable, but female scores increased significantly by 16% from pre-test to

retention test. Surprisingly, the control group experienced a significant increase in breastfeeding attitude score between post-test and retention test (8%), but the experimental group did not. The potential reason is that the breastfeeding peer counselor had to feed her baby during the second session, which gave the adolescents an opportunity to observe breastfeeding up close (26).

While there are many perceived barriers to breastfeeding, it is possible to overcome them through education. Hospital staff must be trained to not only understand breastfeeding but also how to effectively support a breastfeeding environment. Policies within hospitals must be changed in order to accommodate early initiation and rooming in to encourage breastfeeding on demand. In addition, prenatal mothers should be educated about the benefits of breastfeeding, as well as how to initiate and sustain breastfeeding. Finally, a change in breastfeeding beliefs and attitudes must become part of the cultural norm of a population. Effecting change may best be accomplished through educational encounters with young people, who will be the next generation to choose breastfeeding or bottle feeding. It is important for adolescents to develop a future support system for their decision to breastfeed.

Risk of Early Cessation

Because breastfeeding is the optimum form of nutrition for infants through six months of age, it is important to understand why many mothers wean their babies early. In a study by Martens and Young in four Ojibwa communities in Canada, nearly half of the mothers ceased breastfeeding within twelve weeks. Reasons cited included "not enough milk" (40%), "soreness" (15%), and "not enough milk and soreness" (20%) (27). Prenatal breastfeeding belief score, breastfeeding confidence score, and referent (measure of social support) score at two weeks were predictors of early breastfeeding cessation. Overall, mothers who scored highest in satisfaction and highest in social support had 1/40 risk of weaning compared to mothers who were not satisfied with their experience and lacked the support of their referent (27). While this study involved a specialized native Canadian population and may not be generalizable to other groups, many mothers, especially

those in minority groups in which breastfeeding is not the cultural norm, choose not to breastfeed due to similar perceptions (20). Breastfeeding peer counselors may mediate these factors by bolstering the mother's confidence, which may increase satisfaction, as well as provide the social support necessary for continuation of breastfeeding (28).

Peer Education

Peer counselors, often designated as community health workers or lay counselors, come from communities similar in socioeconomic status to the groups whom they serve (29). In addition, peer counselors often share a similar cultural background, life experience, and condition or practice the same behavior as their clients. These counselors assist in disease and case management, share health information, and support health promotion in a way that traditional healthcare workers may not be able to do so (29). Peer educators have been used successfully in diabetes self-management programs (29), smoking cessation programs (30), HIV/AIDS educational programs (31), adolescent pregnancy prevention (32), and physical activity promotion (33), among others. Pérez-Escamilla et al (2008) concluded that peer counselors may have a positive impact on diabetes self-management, breastfeeding, general nutrition knowledge, and dietary behaviors among Latinos (29).

Roles of Breastfeeding Peer Counselors

Breastfeeding peer counselors (BFPCs) provide information and support to mothers through telephone contacts, individual counseling sessions in the home or in a clinic, and group counseling sessions (34). BFPCs often educate mothers about the benefits of breastfeeding, encourage adequate nutrition to support both the mother and the baby, and address issues with breastfeeding (eg, latching on, sore nipples, pumping and storing milk) (9, 34). BFPCs also provide emotional support, as well as refer mothers to other resources as needed (eg, lactation consultants, nutrition assistance programs) (35). Peer counselors may identify and decrease barriers to breastfeeding, recognize and make appropriate referrals to outside resources, and increase a mother's

sense of self-efficacy in breastfeeding (2). Ultimately, BFPCs assist new mothers in having a successful breastfeeding experience (10).

Training of Breastfeeding Peer Counselors

Training of breastfeeding peer counselors varies greatly across programs; however, most programs provide information about lactation physiology and mechanics, counseling and support techniques, and understanding the client (10, 36-40). The World Health Organization (WHO) recommends a minimum of 18 hours of training with 3 hours of hands-on experience for all healthcare workers associated with the Baby Friendly Hospital Initiative (21). In a study by Haider et al (2002), peer counselors in Bangladesh were trained four hours per day over a period of 10 days (40 hours total). The BFPCs participated in classroom lectures on topics such as importance of early initiation and the mother's diet, disadvantages of prelacteal feeds and bottle-feeding, and use of appropriate contraceptives. The BFPCs learned counseling skills (active listening, assessing the baby's position, and building the mother's sense of self-efficacy) through role-play scenarios and demonstrations (41).

Another example of training of BFPCs is found in a study by Morrow et al (1999). This randomized, community-based intervention trial in San Pedro Martir, Mexico, consisted of 130 mother/infant pairs who were randomly assigned to one of three groups: six visits with a peer counselor, three visits with a peer counselor, or no visits with a peer counselor (control group). The three peer counselors attended one week of classes, two months in lactation clinics and mother to mother support groups, and one day of observation and demonstration by experts. In addition, the peer counselors practiced for six months in nearby neighborhoods before beginning the intervention trial (38).

In a study by Leite et al (2005), lay counselors were trained with a 20-hour course adapted from *Breastfeeding counselling - a training course* (37, 42). The lay counselors also attended additional training sessions throughout the program. During the home visits to breastfeeding mothers in

Fortaleza, Brazil, the peer counselors interviewed the mother, observed the home environment and all aspects of breastfeeding (technique and relationship of the mother to the child), and identified any difficulties experienced by the mother (37).

In an innovative pilot program in Texas, four fathers were recruited and trained as "peer dads," learning counseling techniques, benefits of breastfeeding, and how to make referrals (36). The fathers participated in an 8-hour training course and were paid $7.00 per hour for 1 - 16 hours per week. Unfortunately, the program faced difficulties in "peer dad" retention due to the part-time nature of the positions (36).

Effectiveness of Breastfeeding Peer Counseling Programs

Several studies of breastfeeding peer counseling programs have demonstrated an increase in breastfeeding rates of initiation, duration, or exclusivity. For example, Schafer et al (1998) reported that 82% of participants in a one-to-one volunteer BFPC program initiated breastfeeding compared to 31% of participants in the control group. At 12 weeks postpartum, 43% of the BFPC group continued to breastfeed compared to 0% in the control group (9). In a study of predominantly Latina women, Anderson et al (2005) found that mothers in a BFPC intervention were more likely to continue breastfeeding at 3 months (RR = 1.24; 95% CI, 1.09-1.41) compared to their control counterparts (8). Similarly, a study by Leite et al (2005) featured BFPCs in Fortaleza, Brazil, who provided six home visits to mothers at 5, 15, 30, 60, 90, and 120 days after the birth of their low-birthweight infants (37). The counselors were paid $4.00 per home visit (approximate minimum wage in Brazil). The mothers in the intervention group were more likely to exclusively breastfeed their infants at four months of age compared to their control counterparts (24.7% vs. 19.4%, P = 0.044) (37).

In Dhaka, Bangladesh, a community-based trial employed 20 BFPCs part-time (paid an honorarium of $22.50/month) who met with mothers in the intervention group (n = 323) two times during pregnancy, four times in the first month, and every other week until the infants were five

months of age (39). Compared to mothers in the control group (n = 330), peer-counseled mothers held their babies earlier (median time after delivery within 1 hour vs. 2 hours, $P < 0.0001$), initiated breastfeeding within the first hour (64% vs. 15%, $P < 0.0001$), did not use prelacteal feeds (31% vs. 89%, $P < 0.0001$) or postlacteal feeds (23% vs. 47%, $P < 0.0001$), and exclusively breastfed at 5 months (70% vs. 6%, $P < 0.0001$) (39).

Morrow et al (1999) demonstrated that increased number of face-to-face contacts between mothers and BFPCs increased rates of breastfeeding. In this community-based intervention in San Pedro Martir, Mexico, 80% and 67% of mothers in the six-visit group exclusively breastfed their infants at 2 weeks and 3 months respectively compared to 67% and 50% of their three-visit and 24% and 12% of their control counterparts. The infants in the control group were also more likely to experience a diarrheal episode within the first 3 months compared to the infants in the intervention group (RR = 2.1, $P = 0.029$) (38).

In a quasi-experimental study by Olson et al (2010), BFPCs were recruited from the community and provided training in the Breastfeeding Initiative partnership between Michigan's WIC program and the Michigan State Cooperative Extension service. The peer counselors met with mothers (n = 336) at least once in person and continued to have support contact monthly. On average, the peer counselors visited with the mothers three times in the home, two times outside of the home, and made six telephone contacts with the mothers. Because not all mothers who completed referral cards for the program were able to participate in the peer counseling program due to a limited number of counselors, these "unserved" mothers (n = 654) formed the control group. Women in the intervention group were 22.3% more likely to initiate breastfeeding ($P = 0.001$), 9% more likely to breastfeed at three months ($P = 0.002$), and 6.2% more likely to breastfeed at six months ($P = 0.008$) (43).

Merewood et al (2006) demonstrated that BFPCs are effective in promoting breastfeeding in the neonatal intensive care unit (NICU). Peer counselors in the level III NICU at Boston Medical

Center met with mothers of healthy premature infants (26-37 weeks gestation) within 72 hours of birth and continued weekly meetings for six weeks. During the initial meeting, 100% of the peer counselors discussed pumping techniques, 72.1% helped the mother pump, 72.1% accompanied the mother to the NICU, and 30.2% helped the mother to breastfeed, kangaroo care (skin-to-skin contact between mother and baby), or both (44). At twelve weeks postpartum, the intervention group (n = 38) had an odds ratio of 2.81 for providing any breast milk compared to the control group (n = 47). In addition, African-American mothers in the intervention group had an odds ratio of 3.59 for providing any breast milk compared to their counterparts in the control group (44).

Because the breastfeeding rates in Sagkeeng First Nation communities in Manitoba, Canada, are typically lower than the other provinces and social support for breastfeeding is relatively low, Martens and colleagues instituted a breastfeeding peer counseling (PC) program to encourage breastfeeding in this native population (25, 27, 28, 45-47). In a follow-up study, Martens found that PC clients were half as likely to wean at any given point compared to non-PC clients (28). In addition, breastfeeding initiation increased from a low of 38% in 1995 to a high of 60% in 1997 (after the peer counseling program was implemented), with an overall rate of 48% from 1992 - 1997. The peer counseling program also increased breastfeeding duration, with more PC clients breastfeeding compared to their non-PC client counterparts at 2 months (61% vs. 48%) and at 6 months (56% vs. 19%) (28).

Fathers may also participate as "peer counselors" by encouraging other men to support their partners in breastfeeding. Stremler and Lovera (2004) reported on the Texas WIC Dad Peer Program, in which four fathers were trained as "peer dads" to counsel and encourage other fathers to support and promote breastfeeding (36). In May 2002, the peer dads counseled two fathers. In August, 127 counseling contacts resulted from the peer dads' participation in the World Breastfeeding Day activities sponsored by the Texas WIC program. Initiation of breastfeeding at

the two pilot centers increased from 76% to 83% and from 71% to 83% between May and September 2002 (36).

Innovative programs, such as breastfeeding peer counselors, may increase rates of initiation, exclusivity, and duration of breastfeeding, especially among low-income or minority women (8, 9). In a comprehensive review of nine studies of BFPC programs, Rossman (2007) found that three showed significant increase in exclusive breastfeeding, five significantly increased breastfeeding initiation rates, and seven showed a significant increase in duration of breastfeeding (10). Most recently, Chapman et al (2010) reviewed several studies of BFPC programs, dividing the interventions into high intensity and low intensity based on number and type of contacts (11). High intensity programs were defined as providing both prenatal and postpartum contact and three or more contacts, with most being in person. Three out of four high intensity programs that included measures of initiation actually increased the percentage of women who initiated breastfeeding. On the other hand, the three low-intensity interventions (mostly telephone contact) did not significantly increase rates of breastfeeding initiation. A total of thirteen studies included breastfeeding duration as an outcome measure, including the seven studies with measures of initiation. Of the nine high intensity studies, five showed an increase in breastfeeding duration while only one of the low intensity studies increased breastfeeding duration. This study by Dennis et al was in a predominantly white, educated population in Toronto (48). Finally, a total of twelve studies included exclusive breastfeeding as an outcome. Of the seven interventions designed to increase rates of exclusive breastfeeding, all succeeded. In addition, five studies included exclusive breastfeeding measures but were not designed to increase this rate. Of these studies, two resulted in an increase in exclusive breastfeeding. Overall, Chapman et al concluded that peer counselors are effective in increasing rates of breastfeeding initiation, duration and exclusivity (11). Indeed, many BFPC programs increase rates of breastfeeding initiation, duration or exclusivity; however, other programs do not (10). This discrepancy may be due to certain program characteristics or training of breastfeeding

peer counselors. Research is needed to identify the characteristics of successful peer counselors, as well as optimal duration, intensity, and scope of training, optimal number of clients counseled at one time, frequency and duration of contact with the clients, and the most appropriate educational methods and counseling settings to be used (29).

In addition, more studies are needed to assess BFPC programs in the United States. These programs are most often associated with WIC, which is usually housed within local health departments. Program coordinators are often inundated with multiple projects, with breastfeeding promotion activities accounting for less than 25% of their responsibility. Therefore, the program coordinators have limited time and resources to evaluate the efficacy of their programs. WIC commissioned an evaluation project; however, the results were generalized to the state level and did not provide enough useful information to local program coordinators (49).

Utilization of Internet-Based Surveys

Internet usage has increased almost exponentially over the last decade. According to a survey by the Pew Research Center in December 2010, approximately 79% of all adults access the internet for a variety of activities, including e-mail, shopping online, rating products and services, and seeking health/medical related information (50, 51). More than half of most demographic groups use the internet, with the exception of those age 65 and older (42%) (50). Approximately 63% of those who earn less than $30,000 per year, 69% of those who completed high school but not college, and 68% of those living in rural settings regularly access the internet (50). Therefore, the internet provides an avenue to reach a potentially large number of subjects, even those with lower socioeconomic status, in an internet-based survey. In addition, internet-based research offers many advantages to researchers, such as being both time and cost effective with regards to automatic data entry and being available twenty-four hours per day, as well as providing a sense of anonymity and decreased intrusion to subjects (52).

However, reliability and validity of these online surveys may be questioned because the researcher may not actually see the participants. Several researchers have examined this issue by comparing the results of both online surveys and traditional pen and paper or telephone survey methods. In a study by Basnov et al, test-retest reliability of an internet-based and paper and pen version of the short form-36 (SF-36) was assessed in a sample of 782 women who were randomized into each group (53). A subset of this sample was asked to complete the form again in the alternative format. The test-retest reliability of the eight subscales had intra-class correlation coefficients of 0.63 - 0.92. With a Cronbach's alpha of 0.75 - 0.93 for internal consistency between the two versions, the researchers concluded that there was virtually no difference in measurement between the internet-based and traditional pen and paper version of the SF-36 (53). In addition, 97.8% of the internet group compared to 63.4% of the paper and pencil group returned complete surveys without missing data (54). A study by Rankin et al confirmed test-retest reliability of an internet-based survey of risk factors compared to a telephone-based survey in a sample of patients with brain cancer and their siblings or friends (as controls) who completed a main survey followed by a resurvey several weeks later (55). Similarly, Tolstikova and Chartier validated the use of the Core Bereavement Items (CBI) inventory across media types (web-based survey and paper and pencil mail-in survey) (52). The internet-based survey was used to derive the CBI factor structure, of which 14/17 items were replicated in the paper and pencil survey sample. The researchers concluded that the additional three items may have measured differences in the demographic characteristics of the internet sample, or perhaps that the 14 items best reflected the true factor structure (52).

Rationale, Hypotheses, and Specific Aims

According to a report by the Centers for Disease Control and Prevention (CDC), Americans did not meet the breastfeeding goals of *Healthy People 2010* as of the midpoint review in 2006 (3, 4). Innovative programs, such as breastfeeding peer counselors (BFPCs), may increase rates of initiation

and duration of breastfeeding, especially among low-income or minority women as shown in a number of studies (8, 9). In a comprehensive review of nine studies of BFPC programs, Rossman (2007) found that three showed a significant increase in exclusive breastfeeding, five significantly increased breastfeeding initiation rates, and seven showed a significant increase in duration of breastfeeding (10). Indeed, many peer counselor programs increase rates of breastfeeding initiation, duration, or exclusivity; however, other programs do not (10). This discrepancy may be due to certain program characteristics or training of BFPCs. This research project seeks to determine the relationship among employment status (paid versus volunteer), extent of training, and use and intensity of various breastfeeding support techniques through the utilization of an innovative online survey that enables collection of information across training programs and geographic locations. The findings from this research may be able to highlight and increase our understanding of why some BFPC programs/studies have had positive impact on breastfeeding initiation, duration, and exclusivity while others have not. The findings may also inform us whether or not there is a need to develop standardized (optimal) training programs for breastfeeding peer counselors across the country.

Our working hypothesis is that employment status (paid versus volunteer) of breastfeeding peer counselors is associated with intensity and use of a variety of breastfeeding support techniques. The first specific aim is to determine if there is a difference in the extent of breastfeeding support provided by paid versus volunteer peer counselors. It is hypothesized that paid breastfeeding peer counselors will utilize a variety of breastfeeding support techniques with greater frequency than volunteer peer counselors. The second specific aim is to determine if the extent of training is different between paid and volunteer breastfeeding peer counselors. It is hypothesized that paid breastfeeding peer counselors will participate in more hours of training/continuing education than volunteer peer counselors.

CHAPTER 3

PROVISION OF BREASTFEEDING SUPPORT STRATEGIES AND SERVICES - RESULTS FROM AN INTERNET-BASED SURVEY OF COMMUNITY-BASED BREASTFEEDING COUNSELORS [1]

[1] Bignell W, Anderson AK, Sullivan E, Andrianos A. Submitted to The Journal of Human Lactation (December 2010).

Abstract

The purpose of this study was to understand the determinants of optimal provision of support by breastfeeding peer counselors (BFPCs). The specific aims of this project were to determine if there is a difference in the extent of breastfeeding support provided by paid versus volunteer BFPCs and if training is different between these two groups. Participants (n = 847) in this cross-sectional internet-based survey were mostly White/Caucasian (74.9%), college-educated (59.0%), and paid BFPCs (63.8%). Full-time paid BFPCs were more likely to utilize support strategies such as referring clients to social service agencies (OR = 13.18). Because of the disparities in BFPC training and utilization of breastfeeding support between paid and volunteer BFPCs, there is a need for standardization of BFPC training curricula and continuing education requirement.

INDEX WORDS: Breastfeeding peer counselor, Peer counselor, Breastfeeding, Online survey, Breastfeeding support

Introduction

Despite several promotional efforts of breastfeeding as the optimum form of nutrition for infants, Americans continue to fall short of meeting the breastfeeding targets of 75% initiation, 50% continued breastfeeding at six months, and 25% breastfeeding at one year as outlined in the Department Of Health and Human Services *Healthy People 2010* (1, 3, 5). Among low-income women participating in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), the rates of initiation and duration of breastfeeding are even lower than the overall total population (67% vs. 74% initiation, 33% vs. 43.4% continued breastfeeding at 6 months, and 17% vs. 22.7% continued breastfeeding at 12 months) (3, 6). Despite these findings, the Department of Health and Human Services has increased the original goals for *Healthy People 2020* to 81.9% initiation, 60.6% continued breastfeeding at six months, and 34.1% continued breastfeeding at one year with the hope that higher goals and additional promotional efforts will increase breastfeeding rates (7).

Innovative programs, such as breastfeeding peer counselors (BFPCs), may increase rates of initiation, exclusivity, and duration of breastfeeding, especially among low-income or minority women (8, 9). In a comprehensive review of nine studies covering BFPC programs, Rossman (2007) found that three showed a significant increase in exclusive breastfeeding, five significantly increased breastfeeding initiation rates, and seven showed a significant increase in duration of breastfeeding. Most recently, Chapman et al (2010) reviewed several studies of BFPC programs, dividing the interventions into high intensity and low intensity based on number and type of contacts (11). High intensity programs were defined as providing both prenatal and postpartum contact and three or more contacts with most being in person. Three out of four high intensity programs that included measures of initiation actually increased the percentage of women who initiated breastfeeding. On the other hand, the three low-intensity interventions (mostly telephone contact) did not significantly increase rates of breastfeeding initiation. Of the nine high intensity studies reviewed, five showed

an increase in breastfeeding duration while only one of the low intensity studies increased breastfeeding duration. This study by Dennis et al was in a predominantly white, educated population in Toronto (48). Finally, a total of twelve studies included exclusive breastfeeding as an outcome. Of seven interventions designed to increase rates of exclusive breastfeeding, all succeeded. Overall, Chapman et al concluded that peer counselors are effective in increasing rates of breastfeeding initiation, duration, and exclusivity (11).

Indeed, many peer counselor programs increase rates of breastfeeding initiation, duration, or exclusivity; however, other programs do not (10). This discrepancy may be due to certain program characteristics or training of BFPCs (10, 11). This study aimed to determine the relationship among employment status (paid versus volunteer), extent of training, and use and intensity of various breastfeeding support techniques through the utilization of an innovative online survey that enabled collection of information across training programs and geographic locations.

Methods and Design

Study Design

This was a cross-sectional survey designed to examine predictors of intensity and utilization of a variety of breastfeeding support techniques by paid and volunteer breastfeeding peer counselors (BFPCs).

Questionnaire development and testing

A structured questionnaire consisting of 35 questions was developed to collect information about employment status, counseling skills, management and care of cases, experience and education, demographics, and race/ethnicity (counselors and clients) of BFPCs. The principal investigator, in consultation with a psychometrician familiar with several International Board Certified Lactation Consultant (IBCLC) role delineation studies and BFPC training program curricula, reviewed and developed the survey tool. As this survey was the first of its kind, an extensive review of the literature and many interviews with BFPC program managers and trainers

were conducted. The draft survey was subsequently reviewed by several experts, representing various disciplines including human lactation, education, dietetics, and nursing. The draft questionnaire was pilot tested with practicing community-based breastfeeding counselors (N = 11) for content validity. These same community-based breastfeeding counselors then participated in an in-depth interview to ascertain the literacy level and appropriateness of tasks (counseling and management). After further review of the draft questionnaire, the investigators came to a consensus and finalized the survey for distribution to participants.

Survey distribution

Invitations with a link to the survey hosted by SurveyMonkey® were e-mailed to program coordinators of WIC, La Leche League, Cooperative Extension, Early Head Start, Healthy Start, Gift Project, Connect One Chicago, Doulas of North America, Nursing Mothers Council, and Nursing Mothers Network who provide community-based breastfeeding counselor services. These programs, which use para-professionals who receive some training in breastfeeding education/ support and are either paid or work as volunteers, were identified through literature review and personal conversations during our survey development. The program coordinators of the above mentioned programs across the United States then invited and encouraged their BFPCs to participate. Besides the initial email invitation to program coordinators, one email reminder was also sent to coordinators to encourage their BFPCs to complete the survey. Email invitations were sent to program leaders in the 50 states, the District of Columbia, and Puerto Rico. Consent of participants was obtained through clicking "Yes" to the first question, "I agree to participate in this survey," after reading a consent script describing the survey and the responsibility of the respondent. Completed surveys were captured by SurveyMonkey® and downloaded by the researchers for analysis. All methods and procedures were approved by the Institutional Review Board of the University of Georgia.

Subjects

Subjects were breastfeeding peer counselors 18 years of age or older. This convenience sample was recruited via e-mail correspondence by program coordinators of WIC, La Leche League, and other community health organizations from across the United States. A total of 1030 responses were received, of which 847 were completed surveys by BFPCs. Respondents were excluded from analysis if they were designated as certified lactation consultants.

Statistical Analysis

Statistical analysis was performed using PASW Statistics 18.0 for Mac (Chicago, IL). Descriptive statistics including frequency distributions and percentages across variables (eg, employment status, educational level, type and extent of training, and frequency of provision of support techniques) were conducted to describe the study subjects. Bivariate analyses using Chi-square ($\mathbf{X}^2$) test explored differences between groups (paid and volunteer BFPCs), and care provided and breastfeeding counseling skills used. Multivariate logistic regression models were used to determine the independent predictors (eg, employment status, amount of training) of intensity of support techniques (eg, frequency of contacts, use of hands-on techniques, counseling skills) utilized by BFPCs. For the outcome variable for the multivariate logistic regression, responses were re-coded to combine "Rarely," "Sometimes," and "Often" into one category, "Ever," compared to "Never." The level of statistical significance was set at $P < 0.05$.

Results

Characteristics of Participants

Most (63.8%) of the participants were paid counselors (27.9% paid full-time and 35.9% paid part-time) compared to 36.2% who were volunteer/unpaid counselors (Table 3.1). The majority (75.9%) of the volunteer/unpaid counselors reported to have completed college compared to 53.1% and 47.4% of the paid full-time and paid part-time counselors, respectively. On average, participants paid full-time tended to be slightly older than their part-time and volunteer/unpaid counterparts.

The majority (61.9%) of the paid full-time counselors were 40 years or older while the majority of the paid part-time (57.5%) and volunteer/unpaid (56.1%) counselors tended to be younger than 40 years. A significant proportion of the volunteer/unpaid counselors self-identified as White/ Caucasian compared to their paid counterparts (P <0.001). Paid counselors tended to be more diverse in terms of race/ethnicity than their volunteer/unpaid counterparts. Most of the counselors reported to work in medium to large cities with only 17.8%, 16.4%, and 10.4% of paid full-time, paid part-time, and volunteer/unpaid, respectively, operating in rural settings (P <0.001). In terms of personal breastfeeding experience, the majority of the participants reported to have breastfed a child or children for 6 months or more, irrespective of being paid or volunteering. Almost 60.0% of paid full-time and 57.3% of paid part-time compared to 40.8% of volunteer/unpaid counselors reported to have helped breastfeeding mothers for 5 years or more (Table 3.1).

Training and Continuing Education

Most of the participants were trained over time (66.1% full-time, 56.3% part-time, 55.7% volunteer/unpaid) (Figure 3.1) and were exposed to hands-on practice (62.3% full-time, 51.3% part-time, and 69.7% volunteer/unpaid) (Figure 3.2) as part of their training. The majority of paid full-time (53.8%) and part-time participants (55.6%) reported attending continuing education training away from their place of work, compared to only 8.8% of volunteer/unpaid participants, who tended to seek continuing education opportunities mainly at or through their volunteer organization (70.4%) (Figure 3.3). Surprisingly, 8.5% of paid full-time, 4.3% of paid part-time, and 2.3% of volunteer/unpaid participants reported no additional training or continuing education since the initial training received.

Utilization of Support Strategies and Services by Paid/Volunteer Status

Types of Communication

When asked, "How often do you counsel mothers face-to-face at your work or volunteer site," most paid full-time participants responded "Often" compared to paid part-time and

volunteer/unpaid participants (69.5% vs. 56.9% and 35.2% respectively) (Table 3.2). Most (63.5%) paid part-time participants reported counseling mothers often by phone compared to paid full-time (41.9%) and volunteer/unpaid (43.2%) participants. In addition, only a small proportion of participants reported to routinely plan and teach "back to work/school" breastfeeding classes (10.2% paid full-time, 6.9% paid part-time, and 2.6% volunteer/unpaid) (Table 3.2).

Use of Counseling Skills

Paid full-time participants tended to use client-centered counseling skills and active listening skills more often (72.5% and 90.3% respectively) than their paid part-time and volunteer/unpaid counterparts (Table 3.3). Volunteer/unpaid participants did not use client-centered counseling skills as frequently (with only 40.1% reporting utilizing this skill often) but routinely utilized active listening skills (93.2%). Almost half (47.9%) of paid full-time participants reported encouraging and making referrals to social service agencies more often than either paid part-time (22.0%) or volunteer/unpaid (4.9%) participants (Table 3.3). It is likely that paid full-time participants receive more training in the referral process, or that referrals are part of their job description, which may account for this discrepancy.

Use of Hands-on Techniques

Most paid full-time participants reported to often help position the baby on the breast (49.6%) and correct a poor latch (42.8%) compared to their paid part-time and volunteer/unpaid counterparts (Table 3.4). Most of the participants reported never performing finger assessment of the baby's mouth (51.3% paid full-time, 63.8% paid part-time, and 64.5% volunteer/unpaid), while a small proportion routinely teach hand expression (30.9% paid full-time, 25.0% paid part-time, and 10.7% volunteer/unpaid) (Table 3.4).

Utilization of Support Strategies and Services by Type of Continuing Education

Types of Communication

Participants who seek continuing education training away from work/organization or attend one conference per year tend to counsel mothers face-to-face more often (64.1% and 50.8%, respectively) compared to those who utilize only continuing education training provided by their work/organization or have received no additional continuing education since their initial breastfeeding training (46.6% and 40.0% respectively) (Table A.1). Participants who receive continuing education at work or away from work tend to routinely counsel mothers by phone, as well (65.8% and 65.6% respectively). While most participants have not planned and taught a "back to work/school" breastfeeding class, the majority of participants who reported to study on their own (83.8%) or received no continuing education (92.5%) have never taught this type of class compared to those who received training at the work site or at conferences (Table A.1).

Use of Counseling Skills

Participants who received continuing breastfeeding training away from work/organization utilized client-centered counseling skills more often compared to those who only received continuing education training at work, studied on their own or received no additional education (66.9% vs. 51.0%, 35.0%, and 40.0% respectively) (Table A.2). Participants who had received no additional breastfeeding training besides their very initial training more often made referrals to social service agencies (40.0%) compared to those who received continuing breastfeeding education training away from work/organization (27.2%) or attended one conference per year (4.6%) (Table A.2).

Use of Hands-on Techniques

A small proportion of participants who had had no additional continuing breastfeeding education routinely employed hands-on techniques during counseling sessions with their clients. Only 3.0% often help position the baby at the breast, 10.0% often teach hand expression of

breastmilk, 2.5% often perform a finger assessment of the baby's mouth, and 17.5% often correct a poor latch when identified (Table A.3). Many participants who receive continuing education training away from work/organization reported to often teach hand expression (31.6%) and correct a poor latch (40.9%). Interestingly, participants who study on their own reported the highest percentage of often helping position the baby at the breast (48.8%), but only 32.5% help correct a poor latch (Table A.3).

Univariate Analyses

Types of Communication

In the univariate logistic regression, employment status, education, continuing education, race/ethnicity, community setting and experience helping breastfeeding mothers and babies were significantly associated with face-to-face counseling (Table A.4). Participants paid full-time were over four times more likely to engage in face-to-face counseling at their work site compared to their volunteer/unpaid counterparts (OR = 4.27, 95% CI 2.37 - 7.69, P <0.001). Participants who pursued continuing education opportunities at conferences or training away from the job were over four times more likely to counsel mothers face-to-face compared to their counterparts with no additional training (OR = 4.07, 95% CI 1.56 - 10.61, P = 0.004). Participants who operated in rural areas were also more likely to counsel mothers in-person at the work site compared to their suburban counterparts (OR = 2.75, 95% CI 1.20 - 6.32, P = 0.017), and Latino/Hispanic participants were almost two and a half times more likely to engage in face-to-face counseling at the work site compared to their White/Caucasian counterparts (OR = 0.042, 95% CI 1.03 - 5.73, P = 0.042). Finally, participants with less experience (less than 1 year experience) working with breastfeeding mothers and babies were half as likely to counsel mothers face-to-face compared to participants with more than fifteen years of experience (less than 1 year experience: OR = 0.41, 95% CI 0.18 - 0.93, P = 0.032) (Table A.4). Participants who were paid full-time or part-time, Latino/Hispanic, breastfed for six months or less, and helped mothers for less than one year were

significantly less likely to counsel mothers by phone than their referent counterparts (Table A.5). Being paid full-time (OR = 1.44, 95% CI 1.01 - 2.07, $P = 0.044$), not completing college (OR = 1.96, 95% CI 1.44 - 2.68, $P < 0.001$), going to conferences or training away from the job (OR = 9.68, 95% CI 2.92 - 32.03, $P < 0.001$) and being Black/African-American (OR = 2.10, 95% CI 1.25 - 3.53, $P = 0.005$) were associated with increased likelihood of planning and conducting a "back to work/ school" breastfeeding class (Table A.6). To be expected, participants who did not have any personal breastfeeding experience were less likely to conduct such a class (OR = 0.38, 95% CI 0.20 - 0.72, $P = 0.003$) (Table A.6).

Use of Counseling Skills

Participants who were paid full-time employees were over six and a half times more likely than their volunteer/unpaid counterparts to use client-centered counseling skills (OR = 6.60, 95% CI 3.82 - 11.41, $P < 0.001$) (Table A.7). Similarly, paid part-time employees were four times more likely to employ client-centered counseling skills (OR = 4.07, 95% CI 2.65 - 6.24, $P < 0.001$). Other factors associated with increased likelihood of utilizing client-centered counseling skills included not completing college, going to one or more conferences or trainings away from the job each year, being Black/African-American, living in an urban large city, and having not breastfed or breastfeeding 6 - 12 months. Participants who were paid full-time employees were almost thirteen times more likely than their volunteer/unpaid counterparts to encourage or make referrals to social service agencies (OR = 12.95, 95% CI 6.78 - 24.73, $P < 0.001$) (Table A.8). Not attending or completing college, being Black/African-American or Latino/Hispanic, not living in a suburban area, and breastfeeding less than one year or not breastfeeding at all were associated with an increased likelihood of making referrals to social service agencies. Not breastfeeding (OR = 0.22, 95% CI 0.05 - 0.95, $P = 0.043$) and having less than one year of experience working with breastfeeding mothers and babies (OR = 0.11, 95% CI 0.01 - 0.95, $P = 0.045$) were significantly associated with a decreased likelihood of identifying breastfeeding problems (Table A.9).

Use of Hands-on Techniques

With regards to helping to position the baby, being a paid part- time employee (OR = 0.55, 95% CI 0.35 - 0.87, *P* = 0.011), not breastfeeding (OR = 0.30, 95% CI 0.19 - 0.83, *P* = 0.014) or breastfeeding four months or less (OR = 0.86, 95% CI 0.13 - 0.75, *P* = 0.009), and less experience helping breastfeeding mother and babies (less than 1 year: OR = 0.08, 95% CI 0.03 - 0.22, *P* <0.001; 1 - 4 years: OR = 0.18, 95% CI 0.07 - 0.47, *P* <0.001) were associated with a decreased likelihood of utilizing this hands-on technique (Table A.10). Paid full-time participants were 73% more likely to perform finger assessments of a baby's mouth compared to their volunteer/unpaid counterparts (OR = 1.73, 95% CI 1.22 - 2.44, *P* = 0.002) (Table A.11). Participants who did not breastfeed (OR = 0.30, 95% CI 0.16 - 0.55, *P* <0.001) or breastfed less than four months (OR = 0.22, 95% CI 0.10 - 0.46, *P* <0.001) were less likely to correct a poor latch (Table A.12). In addition, participants with less than one year of experience helping breastfeeding mothers and babies were almost 80% less likely to correct a poor latch compared to their more experienced counterparts (OR = 0.21, 95% CI 0.11 - 0.40, *P* <0.001). Finally, paid full- time participants were twice as likely as volunteer/unpaid participants to teach mothers how to use a breast pump (OR = 2.00, 95% CI 1.23 - 3.25, *P* = 0.005) (Table A.13). In addition, participants who did not breastfeed were half as likely as those who breastfed more than two years to teach mothers how to use a breast pump (OR = 0.49, 95% CI 0.25 - 0.97, *P* = 0.039). Participants with less than one year of experience helping breastfeeding mothers and babies were 71% less likely to teach mothers how to use a breast pump (OR = 0.29, 95% CI 0.14 - 0.62, *P* = 0.001) (Table A.13).

Multivariate Analyses

Types of Communication

The adjusted logistic regression assessing the predictors of use of face-to-face counseling revealed that employment status, continuing education, and experience helping breastfeeding mothers and babies were independent predictors of utilization of this type of counseling skill

(Table 3.5). Paid full-time participants were over three and a half times more likely to engage mothers in face-to-face counseling at their work site compared to volunteer/unpaid participants (OR = 3.69, 95% CI 1.93 - 7.06, P <0.001). In addition, participants who attended conferences or trainings away from the job were over three times more likely to utilize this counseling style compared to their counterparts with no continuing education since their initial training (OR = 3.01, 95% CI 1.11 - 8.15, P = 0.031). Conversely, participants with less than one year of experience as a breastfeeding counselor were almost 70% less likely to engage in face-to-face counseling than their counterparts with more than fifteen years of experience helping breastfeeding mothers and babies (OR = 0.32, 95% CI 0.13 - 0.77, P = 0.011). Similarly, significant independent predictors of counseling mothers by telephone were employment status, continuing education, and personal breastfeeding experience (Table 3.5). Paid part-time participants (OR = 0.21, 95% CI 0.05 - 0.80, P = 0.022) were less likely to utilize the telephone for counseling, as were paid full-time participants compared to their volunteer/unpaid counterparts, although this was not statistically significant. Participation in continuing education was significantly associated with increased frequency of counseling mothers by phone. In addition, participants who breastfed for six months or less were less likely to routinely engage mothers in phone counseling, adjusting for other covariates. Finally, participants who did not complete college (OR = 2.20, 95% CI 1.55 - 3.12, P <0.001), attended continuing education training at the work site (OR = 6.38, 95% CI 1.81 - 22.50, P = 0.004) or away from the work site (OR = 9.71, 95% CI 2.79 - 33.86, P <0.001) and were Black/African-American (OR = 2.11, 95% CI 1.18 - 3.78, P = 0.012) were more likely to plan and teach a back to work/ school breastfeeding class (Table 3.5).

Use of Counseling Skills

Employment status was significantly associated with use of client-centered counseling skills (Table 3.6). Paid full-time participants were over six times (OR = 6.23, 95% CI 3.40 - 11.45, P <0.001) and paid part-time participants were over three and a half times (OR = 3.63,

95% CI 2.21 - 5.95, *P* <0.001) more likely to utilize client-centered counseling skills compared to their volunteer/unpaid counterparts. In addition, participants who attended conferences or training as part of their continuing education away from the work/organization site (OR = 5.07, 95% CI 2.21 - 11.66, *P* <0.001), attended one conference a year (OR = 4.88, 95% CI 1.72 - 13.85, *P* = 0.003), or attended training on the job (OR = 3.05, 95% CI 1.36 - 6.85, *P* = 0.007) were more likely to utilize client-centered counseling skills compared to their counterparts with no continuing education. Finally, paid employment status positively impacted the likelihood of a participant making referrals to social service agencies while less experience helping breastfeeding mothers and babies decreased the likelihood of routinely referring clients to social service agencies (Table 3.6). Paid full-time counselors were over thirteen times more likely to refer clients to social service agencies (OR = 13.18, 95% CI 6.86 - 25.32, *P* <0.001), and participants with only 1 - 4 years of experience as a breastfeeding counselor were 53% less likely to refer clients to social service agencies (OR = 0.47, 95% CI 0.27 - 0.81, *P* = 0.007) (Table 3.6).

Use of Hands-on Techniques

With regards to utilization of hands-on techniques during counseling sessions, paid full-time participants were over three times more likely to help position the baby at the breast, perform a finger assessment of the baby's mouth (OR = 1.86, 95% CI 1.29 - 2.69, *P* = 0.001), and teach mothers how to use a breast pump (OR = 2.31, 95% CI 1.28 - 4.17, *P* = 0.005) compared to their volunteer/unpaid counterparts (Table 3.7). Having less than one year of experience as a breastfeeding counselor was associated with decreased likelihood of helping to position the baby at the breast (OR = 0.09, 95% CI 0.03 - 0.26, *P* <0.001), performing a finger assessment of the baby's mouth (OR = 0.12, 95% CI = 0.06 - 0.23, *P* <0.001), correcting a poor latch (OR = 0.28, 95% CI 0.14 - 0.56, *P* <0.001), and teaching mothers to use a breast pump (OR = 0.14, 95% CI 0.05 - 0.35, *P* <0.001). Age of participants less than 30 years was also a significant independent predictor of teaching mothers to use a breast pump (Table 3.7). Participation in any continuing education was

significantly associated with increased likelihood of helping to position the baby at the breast, correcting a poor latch, and teaching mothers to use a breast pump (with the exception of studying on one's own, which showed an increased likelihood but was not significant) compared to their counterparts with no continuing education since their initial training (Table 3.7). Finally, shorter duration of personal breastfeeding experience by the counselors was associated with a decreased likelihood of helping to position the baby at the breast, correcting a poor latch, and teaching mothers to use a breast pump (Table 3.7).

Discussion

Breastfeeding peer counselors provide information and support to mothers through telephone contacts, individual counseling sessions in the home or in a clinic, and group counseling sessions (34). Peer counselors may decrease barriers to breastfeeding, recognize and make appropriate referrals to outside resources, and increase a mother's sense of self-efficacy in breastfeeding (2). Therefore, it is important to understand the determinants of utilization of different support strategies and services by BFPCs. This current study in particular sought to examine the differences in training and provision of support between paid and volunteer peer counselors. To the best of our knowledge, this is the first nationwide cross-sectional survey to collect information about characteristics and training of BFPCs across programs.

Table 3.8 summarizes some of the key findings of this study. Paid full-time BFPCs were more likely to engage in intensive communication styles, such as face-to-face counseling at the work site and preparing and teaching "back to work/school" breastfeeding classes, and less likely to provide counseling by telephone. In individual counseling settings, in-person contact has been seen as more effective in terms of increasing rates of initiation, duration, and exclusivity (11). Chapman et al (2010) found that three low-intensity studies designed to increase rates of initiation through predominantly telephone contact were not effective in significantly increasing breastfeeding rates (11). In addition, Morrow et al (1990) found that women were more likely to exclusively breastfeed

at 2 weeks and 3 months postpartum if they received six visits with a peer counselor (80% and 67% respectively) compared to a control group (24% and 12% respectively) (38). Therefore, it is potentially beneficial that BFPCs counsel mothers more often in person rather than via telephone, which was observed in this nationwide survey among paid full-time and not volunteer counselors.

Utilization of counseling skills was also impacted by employment status. Paid full-time peer counselors were more likely to use client-centered counseling skills, as well as make referrals to social service agencies, than their volunteer/unpaid counterparts. In a study by Haider et al (2002), breastfeeding peer counselors were trained specifically in counseling techniques in order to learn how to build the mother's sense of self-efficacy and as a result of the specifics of the training received, 70% of mothers in the project area exclusively breastfed their infants for five months compared to 6% of mothers in the control area (41). This therefore shows the importance of incorporating client-centered counseling skills in the training of BFPCs to ensure the impact of their counseling and support on breastfeeding promotion as we strive to achieve the breastfeeding objectives set in the *Healthy People 2020* goals for the nation.

Our findings show that counselors paid full-time employ different hands-on techniques (positioning the baby at the breast, performing a finger assessment of the baby's mouth, and teaching mothers how to use a breast pump) during their counseling and support of nursing mothers than their volunteer counterparts. Hands-on techniques are essential to building a mother's sense of self-efficacy and improving satisfaction with the breastfeeding experience. In a study by Martens and Young, it was found that early weaning was associated with dissatisfaction with breastfeeding and perceived breastfeeding problems, such as insufficient milk supply or soreness (27). Therefore, BFPCs need to be equipped with adequate hands-on techniques to help mothers overcome such problems. BFPCs equipped with adequate hands-on techniques are reported to help mothers solve problems associated with breastfeeding, such as improper positioning of the baby, which may lead to soreness during their counseling sessions (9, 34).

While paid full-time peer counselors tend to utilize more intensive strategies, such as face-to-face counseling, client-centered counseling skills, and hands-on techniques, is the employment status truly the important factor in predicting utilization of these support strategies and services? It is important to investigate the characteristics of paid full-time peer counselors. Most of these peer counselors were older (40 - 59 years) with a longer combined length of time breastfeeding and more years of experience helping breastfeeding mothers and babies. However, similar characteristics were found with the volunteer/unpaid group of participants, especially with regards to number of years of experience with breastfeeding mothers and babies. This point is important because less experience helping breastfeeding mothers and babies was also a significant predictor of not counseling mothers face-to-face, using client-centered counseling skills, referring clients to outside social services, helping position the baby at the breast, performing a finger assessment of the baby's mouth, correcting a poor latch, or teaching mothers how to use a breast pump during counseling sessions. Therefore, another factor must impact the utilization of more intensive strategies in counseling breastfeeding mothers.

The answer may lie within the different curricula used for the initial training to become a counselor and type of continuing education opportunities pursued by full-time paid and volunteer/unpaid peer counselors. Paid peer counselors tend to continue their education through training away from their work sites while volunteer/unpaid peer counselors are more reliant on training offered by their volunteer organization. Indeed, more participants who seek training away from work utilize face-to-face counseling skills, as well as client-centered counseling skills and a hands-on approach during counseling sessions. Training provided away from the work site is often more intense than monthly "in-service" training, which frequently relies on videos and is scheduled between handling of paperwork or other documentation. Conferences usually provide a variety of speakers and session topics that allow BFPCs to improve many skills in one continuing education encounter.

Curricula used for the initial training of breastfeeding peer counselors vary across programs, although most provide basic information about lactation physiology and mechanics, counseling and support techniques, and understanding the client (10, 36-40). Unfortunately, only a few published studies report on how peer counselors are trained and what is the process of ensuring continuing education (11). The results of the present study show that paid full-time breastfeeding peer counselors utilize intense counseling strategies more frequently than their volunteer/unpaid counterparts; they also participate in more continuing education opportunities away from their work site. Therefore, it may be advantageous to evaluate the content of the various training curricula used by different BFPC programs in an effort to standardize the training provided all breastfeeding peer counselors in our quest to achieve the breastfeeding objectives in the *Healthy People 2020*. It is also important to evaluate the current incentives provided counselors, whether paid or volunteering, to encourage the use of continuing education to update their skills and knowledge in breastfeeding support.

Several limitations exist within the design and data collection of this study that may affect the generalizability of results to the population of BFPCs as a whole. First, this survey was conducted predominantly via the internet. While most adults regularly access the internet, many peer counselors may be lower income and have a lower literacy level, therefore limiting their access and use of the internet and hence not captured in this survey (34, 43, 51). Participants were recruited by program coordinators identified during our survey development; however, there is no national registry of peer counselors, and therefore response rate could not be calculated nor the representation of our respondents ascertained. The majority of respondents were White/Caucasian and had completed college, which may be atypical of all peer counselors, especially since many programs have sought to increase breastfeeding rates among minority groups (8, 34, 44, 56). Finally, several questions did not feature an answer choice for indicating no experience. Respondents may have chosen "never" if they had not encountered a particular situation or may have left the question

blank, which would have resulted in their survey being counted as incomplete. In addition, it would be interesting to have included a question about state of residence to ensure that responses from every state were available and that responses were not merely representative of a sub-section of the country as a whole. Also, such information about geographic location of the counselors would have helped increase our understanding why certain states and geographical areas of the country met the *Healthy People 2010* goals for breastfeeding (15).

Overall, findings from this study suggest that counselors paid full time and with more years of experience helping breastfeeding mothers and babies were more likely to provide intensive counseling strategies. In addition, the majority of full-time paid BFPCs participated in continuing education opportunities outside of their place of work, which may have contributed to the use of various counseling skills. Further research is needed to examine the content of the different BFPC training programs available and determine the characteristics and activities of each that increase the self-efficacy of BFPC with regards to utilization of intensive counseling strategies, ultimately resulting in a standardized training program for BFPCs across the country. From the results of our study, a standardized program should include adequate contact hours (a minimum of 20 hours per the World Health Organization) (21), as well as provide opportunities for hands-on practice and encourage formal continuing education training. The standardization of training will hopefully increase the rate of success among breastfeeding peer counselor programs.

Table 3.1: Characteristics of Breastfeeding Peer Counselors by Employment Status

	Paid Full Time n (%)	Paid Part Time n (%)	Volunteer/ Unpaid n (%)	P-Value
Education				<0.001
Did not attend any college	22 (9.3)	45 (14.8)	15 (4.9)	
Did not complete college	91 (38.6)	115 (37.8)	59 (19.2)	
Completed college	123 (52.1)	144 (47.4)	233 (75.9)	
Age				<0.001
Under 30 years	42 (17.8)	63 (20.7)	34 (11.1)	
30 – 39 years	48 (20.3)	112 (36.8)	138 (45.0)	
40 – 49 years	60 (25.4)	69 (22.7)	73 (8.6)	
50 – 59 years	66 (28.0)	53 (17.4)	43 (14.0)	
Over 60 years	20 (8.5)	7 (0.8)	19 (6.2)	
Race or ethnic group				<0.001
Asian American	4 (1.7)	1 (0.3)	0 (0.0)	
Black/African American	32 (13.6)	28 (9.2)	4 (1.3)	
Latino/Hispanic American	45 (19.1)	39 (12.8)	8 (2.6)	
Native American	0 (0.0)	1 (0.3)	6 (2.0)	
Multiracial American	7 (3.0)	5 (1.6)	5 (1.6)	
White/Caucasian	136 (57.6)	221 (72.7)	277 (90.2)	
Other	12 (5.1)	9 (3.0)	7 (2.3)	
Setting for work or volunteer peer counseling				<0.001
Rural: under 10,000 people	42 (17.8)	50 (16.4)	32 (10.4)	
Small city: 10,000 – 100,000 people	58 (24.6)	91 (29.9)	91 (29.6)	
Medium city: 100,000 – 500,000 people	64 (27.1)	68 (22.4)	59 (19.2)	
Urban large city: over 500,000 people	61 (25.8)	67 (22.0)	51 (16.6)	
Suburban near a medium or large city	11 (4.7)	28 (9.2)	74 (24.1)	
Personal breastfeeding experience				<0.001
Did not breastfeed	46 (19.5)	22 (7.2)	3 (1.0)	
1 – 4 months	21 (8.9)	15 (4.9)	1 (0.3)	
5 – 6 months	18 (7.6)	7 (2.3)	0 (0.0)	
6 – 12 months	43 (18.2)	37 (12.2)	7 (2.3)	
12 – 24 months	71 (30.1)	163 (53.6)	211 (68.7)	
More than 24 months	37 (15.7)	60 (19.7)	85 (27.7)	
Length of time helping breastfeeding mothers and babies				<0.001
Less than 1 year	25 (10.6)	42 (13.8)	17 (5.5)	
1 – 4 years	70 (29.7)	138 (45.4)	114 (37.1)	
5 – 9 years	55 (23.3)	58 (19.1)	78 (25.4)	
10 – 15 years	37 (15.7)	35 (11.5)	32 (10.4)	
Over 15 years	49 (20.8)	31 (10.2)	66 (21.5)	

Table 3.2: Types of Communication Used by Breastfeeding Peer Counselors by Employment Status

		Paid Full Time n (%)	Paid Part Time n (%)	Volunteer/ Unpaid n (%)	P-Value
How often do you counsel mothers face-to-face at your work or volunteer site?					<0.001
	Never	15 (6.4)	24 (7.9)	69 (22.5)	
	Rarely	22 (9.3)	33 (10.9)	41 (13.4)	
	Sometimes	35 (14.8)	74 (24.3)	89 (29.0)	
	Often	164 (69.5)	173 (56.9)	108 (35.2)	
How often do you counsel mothers by phone?					<0.001
	Never	22 (9.3)	20 (6.6)	3 (1.0)	
	Rarely	23 (9.7)	17 (5.6)	6 (2.0)	
	Sometimes	92 (39.0)	74 (24.3)	76 (24.8)	
	Often	99 (41.9)	193 (63.5)	222 (43.2)	
How often do you plan and teach a "back to work/school" breastfeeding class?					0.002
	Never	145 (61.4)	206 (67.8)	214 (69.7)	
	Rarely	37 (15.7)	36 (11.8)	56 (18.2)	
	Sometimes	30 (12.7)	41 (13.5)	29 (9.4)	
	Often	24 (10.2)	21 (6.9)	8 (2.6)	

Table 3.3: Counseling Skills Used by Breastfeeding Peer Counselors by Employment Status

		Paid Full Time n (%)	Paid Part Time n (%)	Volunteer/ Unpaid n (%)	P-Value
Client-centered counseling skills					<0.001
	Never	17 (7.2)	34 (11.2)	104 (33.9)	
	Rarely	11 (4.7)	15 (4.9)	21 (6.8)	
	Sometimes	37 (15.7)	83 (27.3)	59 (19.2)	
	Often	171 (72.5)	172 (56.6)	123 (40.1)	
Active listening skills					0.254
	Never	1 (0.4)	3 (1.0)	2 (0.7)	
	Rarely	5 (2.1)	3 (1.0)	0 (0.0)	
	Sometimes	17 (7.2)	24 (7.9)	19 (6.2)	
	Often	213 (90.3)	274 (90.1)	286 (93.2)	

Table 3.3: Counseling Skills Used by Breastfeeding Peer Counselors by Employment Status

Encourage or make referrals to social service agencies					<0.001
	Never	11 (4.7)	50 (16.4)	119 (38.8)	
	Rarely	34 (14.4)	85 (28.0)	115 (37.5)	
	Sometimes	78 (33.1)	102 (33.6)	58 (18.9)	
	Often	113 (47.9)	67 (22.0)	15 (4.9)	
Identify breastfeeding problems					0.039
	Never	4 (1.7)	6 (2.0)	4 (1.3)	
	Rarely	12 (5.1)	15 (4.9)	7 (2.3)	
	Sometimes	56 (23.7)	81 (26.6)	54 (17.6)	
	Often	164 (69.5)	202 (66.4)	242 (78.8)	

Table 3.4: Use of Hands-on Techniques by Breastfeeding Peer Counselors by Employment Status

		Paid Full Time n (%)	Paid Part Time n (%)	Volunteer/ Unpaid n (%)	P-Value
Help position baby (hands-on)					<0.001
	Never	16 (6.8)	56 (18.4)	34 (11.1)	
	Rarely	39 (16.5)	40 (13.2)	74 (24.1)	
	Sometimes	64 (27.1)	75 (24.7)	112 (36.5)	
	Often	117 (49.6)	133 (43.8)	87 (28.3)	
Teach hand expression					<0.001
	Never	43 (18.2)	65 (21.4)	53 (17.3)	
	Rarely	55 (23.3)	62 (20.4)	110 (35.8)	
	Sometimes	65 (27.5)	101 (33.2)	111 (36.2)	
	Often	73 (30.9)	76 (25.0)	33 (10.7)	
Finger assessment of the mouth					0.001
	Never	121 (51.3)	194 (63.8)	198 (64.5)	
	Rarely	52 (22.0)	44 (14.5)	59 (19.2)	
	Sometimes	39 (16.5)	40 (13.2)	41 (13.4)	
	Often	24 (10.2)	26 (8.6)	9 (2.9)	
Correct a poor latch (hands-on)					<0.001
	Never	58 (24.6)	84 (27.6)	65 (21.2)	
	Rarely	30 (12.7)	41 (13.5)	58 (18.9)	
	Sometimes	47 (19.9)	75 (24.7)	108 (35.2)	
	Often	101 (42.8)	104 (34.2)	76 (24.8)	

Table 3.5: Adjusted logistic regression for predictors of use of communication styles

	OR	95% CI	P-Value
Counsel mothers face-to-face at the workplace [A]			
Employment Status:			
Paid Full Time	3.69	1.93 - 7.06	<0.001
Paid Part Time	3.38	1.91 - 5.98	<0.001
Volunteer/Unpaid	1.00	-	-
Continuing Education:			
Go to one conference a year	1.29	0.43 - 3.86	NS
Go to training at my job	1.69	0.66 - 4.29	NS
Go to conferences and trainings away from the job	3.01	1.11 - 8.15	0.031
Study on my own time	0.76	0.28 - 2.08	NS
Have not had additional training or education	1.00	-	-
Experience helping breastfeeding mothers and babies:			
Less than 1 year	0.32	0.13 - 0.77	0.011
1 - 4 years	0.50	0.25 - 1.01	0.053
5 - 9 years	0.64	0.30 - 1.36	NS
10 - 15 years	0.76	0.31 - 1.89	NS
Over 15 years	1.00	-	-
Counsel mothers by phone [B]			
Employment Status:			
Paid Full Time	0.26	0.06 - 1.07	0.062
Paid Part Time	0.21	0.05 - 0.80	0.022
Volunteer/Unpaid	1.00	-	-

Table 3.5: Adjusted logistic regression for predictors of use of communication styles

Continuing Education:			
Go to one conference a year	23.43	2.55 - 215.24	0.005
Go to training at my job	12.36	4.26 - 35.83	<0.001
Go to conferences and trainings away from the job	19.20	6.42 - 57.39	<0.001
Study on my own time	7.25	2.01 - 26.24	0.003
Have not had additional training or education	1.00	-	-
Race/Ethnicity:			
Black/African American	1.44	0.00	NS
Latino/Hispanic	0.42	0.17 - 1.02	0.056
Multiracial	1.85	0.12 - 28.52	NS
Other*	0.80	0.16 - 4.04	NS
White/Caucasian	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	0.18	0.04 - 0.74	0.018
1 - 4 months	0.11	0.03 - 0.51	0.005
5 - 6 months	0.07	0.01 - 0.34	0.001
6 - 12 months	2.05	0.29 - 14.49	NS
12 - 24 months	0.74	0.20 - 2.79	NS
More than 24 months	1.00	-	-
Plan and teach a back to work/school breastfeeding class [C]			
Employment Status:			
Paid Full Time	1.37	0.79 - 2.19	NS
Paid Part Time	2.20	0.53 - 1.29	NS
Volunteer/Unpaid	1.00	-	-

Table 3.5: Adjusted logistic regression for predictors of use of communication styles

Continuing Education:			
Go to one conference a year	2.96	0.75 - 11.79	NS
Go to training at my job	6.38	1.81 - 22.50	0.004
Go to conferences and trainings away from the job	9.71	2.79 - 33.86	<0.001
Study on my own time	2.91	0.74 - 11.46	NS
Have not had additional training or education	1.00	-	-
Education:			
Did not attend any college	1.37	0.80 - 2.35	NS
Did not complete college	2.20	1.55 - 3.12	<0.001
Completed college	1.00	-	-
Race/Ethnicity:			
Black/African American	2.11	1.18 - 3.78	0.012
Latino/Hispanic	1.22	0.73 - 2.07	NS
Multiracial	0.17	0.04 - 0.84	0.030
Other*	1.40	0.70 - 2.81	NS
White/Caucasian	1.00	-	-
Age:			
Less than 30 years	0.45	0.21 - 0.96	0.037
30 - 39 years	0.38	0.19 - 0.76	0.006
40 - 49 years	0.54	0.27 - 1.09	0.087
50 - 59 years	0.48	0.23 - 0.98	0.045
over 60 years	1.00	-	-

Table 3.5: Adjusted logistic regression for predictors of use of communication styles

Personal breastfeeding experience:			
Did not breastfeed	0.32	0.15 - 0.68	0.003
1 - 4 months	0.31	0.13 - 0.73	0.008
5 - 6 months	0.26	0.09 - 0.76	0.013
6 - 12 months	0.53	0.29 - 0.97	0.041
12 - 24 months	0.81	0.55 - 1.19	NS
More than 24 months	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

[A] Hosmer and Lemeshow Test: $\mathbf{X}^2 = 3.25$; $P = 0.917$

[B] Hosmer and Lemeshow Test: $\mathbf{X}^2 = 6.88$; $P = 0.442$

[C] Hosmer and Lemeshow Test: $\mathbf{X}^2 = 9.47$; $P = 0.304$

Table 3.6: Adjusted logistic regression for predictors of use of counseling skills

	OR	95% CI	P-Value
Use of client-centered counseling skills [A]			
Employment Status:			
Paid Full Time	6.23	3.40 - 11.45	<0.001
Paid Part Time	3.63	2.21 - 5.95	<0.001
Volunteer/Unpaid	1.00	-	-
Continuing Education:			
Go to one conference a year	4.88	1.72 - 13.85	0.003
Go to training at my job	3.05	1.36 - 6.85	0.007
Go to conferences and trainings away from the job	5.07	2.21 - 11.66	<0.001
Study on my own time	1.49	0.61 - 3.62	NS
Have not had additional training or education	1.00	-	-
Encourage and make referrals to social service agencies [B]			
Employment Status:			
Paid Full Time	13.18	6.86 - 25.32	<0.001
Paid Part Time	3.64	2.45 - 5.41	<0.001
Volunteer/Unpaid	1.00	-	-
Experience helping breastfeeding mothers and babies:			
Less than 1 year	0.40	0.19 - 0.84	0.015
1 - 4 years	0.47	0.27 - 0.81	0.007
5 - 9 years	0.56	0.31 - 1.02	0.059
10 - 15 years	1.16	0.53 - 2.54	NS
Over 15 years	1.00	-	-

[A] Hosmer and Lemeshow Test: $\mathbf{X}^2 = 1.34$; $P = 0.969$
[B] Hosmer and Lemeshow Test: $\mathbf{X}^2 = 4.68$; $P = 0.699$

Table 3.7: Adjusted logistic regression for predictors of use of hands-on techniques

	OR	95% CI	P-Value
Help position baby (hands on) [A]			
Employment Status:			
Paid Full Time	3.77	1.64 - 8.69	0.002
Paid Part Time	0.79	0.44 - 1.45	NS
Volunteer/Unpaid	1.00	-	-
Continuing Education:			
Go to one conference a year	3.28	1.10 - 9.86	0.034
Go to training at my job	3.14	1.35 - 7.33	0.008
Go to conferences and trainings away from the job	3.38	1.45 - 7.91	0.005
Study on my own time	8.52	2.67 - 27.20	<0.001
Have not had additional training or education	1.00	-	-
Education			
Did not attend any college	0.82	0.41 - 1.66	NS
Did not complete college	1.64	0.96 - 2.81	0.073
Completed college	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	0.34	0.14 - 0.83	0.017
1 - 4 months	0.27	0.10 - 0.76	0.013
5 - 6 months	0.51	0.12 - 2.12	NS
6 - 12 months	0.96	0.39 - 2.34	NS
12 - 24 months	1.09	0.61 - 1.97	NS
More than 24 months	1.00	-	-

Table 3.7: Adjusted logistic regression for predictors of use of hands-on techniques

Experience helping breastfeeding mothers and babies:			
Less than 1 year	0.09	0.03 - 0.26	<0.001
1 - 4 years	0.22	0.08 - 0.57	0.002
5 - 9 years	0.48	0.16 - 1.40	NS
10 - 15 years	0.35	0.11 - 1.08	0.067
Over 15 years	1.00	-	-
Finger assessment of baby's mouth [B]			
Employment Status:			
Paid Full Time	1.86	1.29 - 2.69	0.001
Paid Part Time	1.36	0.96 - 1.93	0.088
Volunteer/Unpaid	1.00	-	-
Experience helping breastfeeding mothers and babies:			
Less than 1 year	0.12	0.06 - 0.23	<0.001
1 - 4 years	0.21	0.13 - 0.32	<0.001
5 - 9 years	0.41	0.26 - 0.65	<0.001
10 - 15 years	0.36	0.21 - 0.60	<0.001
Over 15 years	1.00	-	-
Correct a poor latch [C]			
Continuing Education:			
Go to one conference a year	3.29	1.34 - 8.05	0.009
Go to training at my job	3.44	1.67 - 7.10	0.001
Go to conferences and trainings away from the job	4.65	2.24 - 9.64	<0.001
Study on my own time	4.21	1.80 - 9.87	0.001
Have not had additional training or education	1.00	-	-

Table 3.7: Adjusted logistic regression for predictors of use of hands-on techniques

Personal breastfeeding experience			
Did not breastfeed	0.40	0.21 - 0.77	0.006
1 - 4 months	0.24	0.11 - 0.53	<0.001
5 - 6 months	0.68	0.25 - 1.83	NS
6 - 12 months	0.70	0.37 - 1.34	NS
12 - 24 months	0.78	0.49 - 1.23	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies:			
Less than 1 year	0.28	0.14 - 0.56	<0.001
1 - 4 years	0.35	0.20 - 0.61	<0.001
5 - 9 years	0.60	0.32 - 1.12	NS
10 - 15 years	0.61	0.30 - 1.24	NS
Over 15 years	1.00	-	-
Teach mothers to use a breast pump [D]			
Employment Status:			
Paid Full Time	2.31	1.28 - 4.17	0.005
Paid Part Time	1.68	1.00 - 2.81	0.048
Volunteer/Unpaid	1.00	-	-
Continuing Education:			
Go to one conference a year	3.46	1.32 - 9.06	0.012
Go to training at my job	3.52	1.63 - 7.58	0.001
Go to conferences and trainings away from the job	6.22	2.80 - 13.83	<0.001
Study on my own time	1.98	0.84 - 4.69	NS
Have not had additional training or education	1.00	-	-

Table 3.7: Adjusted logistic regression for predictors of use of hands-on techniques

Age:			
Less than 30 years	3.23	1.10 - 9.50	0.033
30 - 39 years	2.12	0.79 - 5.73	NS
40 - 49 years	1.77	0.66 - 4.79	NS
50 - 59 years	0.73	0.28 - 1.91	NS
Over 60 years	1.00	-	-
Experience helping breastfeeding mothers and babies:			
Less than 1 year	0.14	0.05 - 0.35	<0.001
1 - 4 years	0.22	0.10 - 0.49	<0.001
5 - 9 years	0.32	0.15 - 0.72	0.006
10 - 15 years	0.44	0.18 - 1.05	0.065
Over 15 years	1.00	-	-

[A] Hosmer and Lemeshow Test: $\mathbf{X}^2 = 9.19$; $P = 0.326$
[B] Hosmer and Lemeshow Test: $\mathbf{X}^2 = 3.55$; $P = 0.895$
[C] Hosmer and Lemeshow Test: $\mathbf{X}^2 = 9.39$; $P = 0.311$
[D] Hosmer and Lemeshow Test: $\mathbf{X}^2 = 7.89$; $P = 0.445$

Table 3.8: Summary of key findings

	Full-time Paid Breastfeeding Peer Counselors	**Part-time Paid Breastfeeding Peer Counselors**	**Volunteer/Unpaid Breastfeeding Peer Counselors**
More likely to:	• Counsel mothers face-to-face • Use client-centered counseling skills • Make referrals to social service agencies • Help position baby at the breast • Perform finger assessment of baby's mouth • Teach mothers to use a breast pump	• Counsel mothers face-to-face • Use client-centered counseling skills • Make referrals to social service agencies • Teach mothers to use a breast pump	• Counsel mothers by phone
Less likely to:	• Counsel mothers by phone	• Counsel mothers by phone • Help position baby at the breast	• Counsel mothers face-to-face • Use client-centered counseling skills • Make referrals to social service agencies • Help position baby at the breast • Perform finger assessment of baby's mouth • Teach mothers to use a breast pump

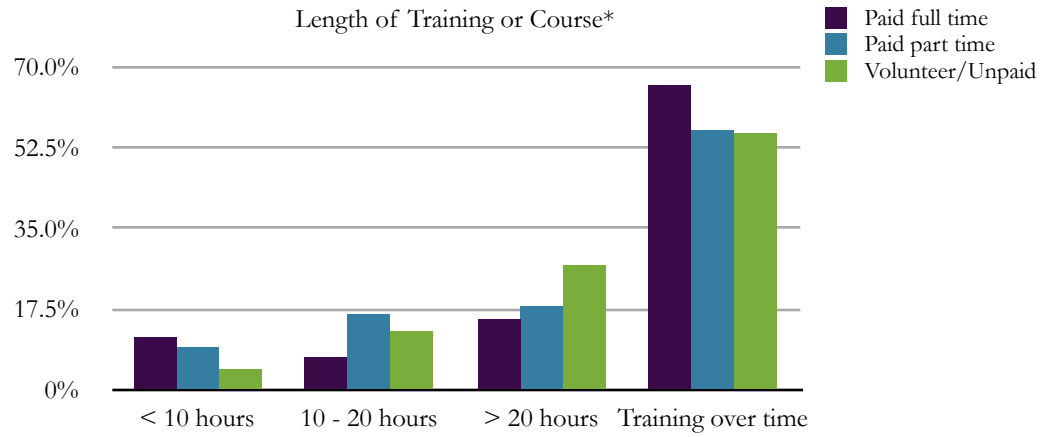

Figure 3.1: Length of training or course by employment status

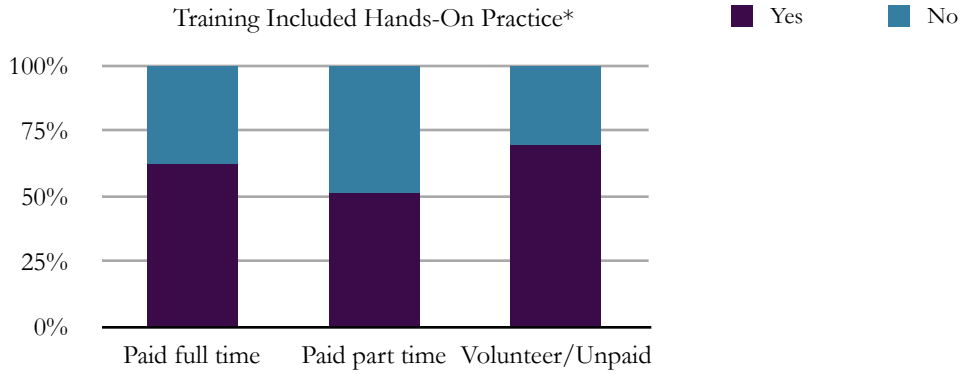

Figure 3.2: Training included hands-on practice

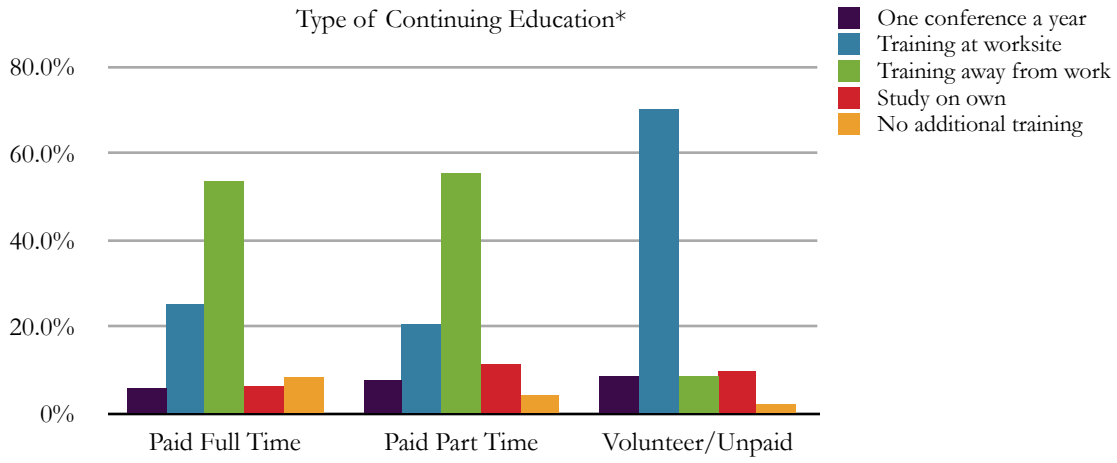

Figure 3.3: Continuing Education Pursued by Employment Status

*P < 0.001

CHAPTER 4

CONCLUSION

The purpose of this survey was to determine the predictors of utilization of counseling skills and support strategies among breastfeeding peer counselors across the country and across training programs. In particular, this study examined the differences between paid and volunteer BFPCs. The overall hypothesis was that employment status (paid versus volunteer) of BFPCs would be associated with intensity and use of a variety of breastfeeding support techniques. The first specific aim was to determine if there was a difference in the extent of breastfeeding support provided by paid versus volunteer peer counselors, with the hypothesis being that paid BFPCs would utilize a variety of breastfeeding support techniques with greater frequency than volunteer peer counselors. The second specific aim was to determine if the extent of training differed between paid and volunteer BFPCs. It was hypothesized that paid BFPCs would participate in more extensive initial training programs and more hours of continuing education than volunteer peer counselors.

The results from this study suggest that there is indeed a difference in support strategies and services provided by paid BFPCs compared to their volunteer/unpaid counterparts. Paid full-time BFPCs were more likely to engage in intensive communication styles, which is a confirmation to the findings from a review by Chapman et al (2010) (11). Employment status also impacted utilization of counseling skills. Paid BFPCs were more likely to utilize client-centered counseling skills and make referrals to outside resources for their clients. Counseling skills are important components of a peer counselor's repertoire in order to increase a mother's sense of self-efficacy for breastfeeding (41). Finally, paid BFPCs were more likely to practice hands-on techniques with their clients. Many breastfeeding women experience problems associated with incorrect positioning of the baby, which

often leads to soreness and discomfort. The pain and sense of failure may lead to feelings of dissatisfaction with the breastfeeding experience. As a result, the women may wean their infants early (45). Breastfeeding peer counselors can be instrumental in identifying and helping to solve such problems in order to prolong breastfeeding among their clients.

This study also demonstrated that paid and volunteer BFPCs seek continuing education through different avenues. Most full-time paid peer counselors attend educational trainings off-site, while volunteer/unpaid counselors are more reliant on work-site/organization offered continuing education trainings. Oftentimes, in-service training sessions may be short and less intense compared to conferences and seminars. It is possible that peer counselors who attend off-site training are exposed to more information with greater depth, which may increase their practice of a variety of support strategies and skills. Short sessions also tend to be lecture-oriented with less application-based learning.

Training of BFPCs varies across programs with regards to duration, frequency of meeting, and extent of hands-on experience, although most present basic skills (10, 36-38, 41). Few studies discuss in detail the training of their BFPCs (11). Future research should focus on a comparison of training programs, seeking to determine the factors associated with increased knowledge and practice of a variety of counseling and support techniques of its participants. Future research should focus on determining which counseling skills and support strategies are most associated with improved client outcomes, such as increased initiation, duration, and rate of exclusive breastfeeding. In addition, research should also determine what frequency and duration of continuing education per year is associated with acquisition and retention of knowledge and skills in BFPCs. Ultimately, all of these findings should be assimilated into a standardized training program that would ensure consistency of knowledge, skill, and practice among BFPCs across the country. The standardization of such training may help to increase the likelihood of program success, which would be defined by

an increase in breastfeeding initiation, duration, and exclusivity to meet the breastfeeding goals set forth in *Healthy People 2020* (7) as a means to reduce the health disparities found in the United States.

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APPENDICES

APPENDIX A

SURVEY

1. Consent

July 6, 2009

Dear Breastfeeding Counselor:

The International Board of Lactation Consultant Examiners (IBLCE) is sending out a national survey to peer counselors, nutrition educators, and home visitors to learn about the training and work of community breastfeeding counselors. I, the Project Manager, and Alex Anderson, professor of Nutrition in the Department of Foods and Nutrition at The University of Georgia and consultant to the project, invite you to take part in a research survey called "Community Breastfeeding Counselors Role Survey".

To take part in this survey, you must be 18 years of age or older.

Taking part in the survey will involve answering work related questions and it should only take about 15 minutes. Being in the study is voluntary, and you may choose not to take part or stop at any time without penalty or loss of benefits to which you are otherwise entitled.

Since the survey is internet based, it is important to understand that internet communications are not always secure and there is a limit to the confidentiality that can be guaranteed due to the technology itself. However, once the survey responses are received, you will remain anonymous. The results of the survey may be published, but your name will not be used. In fact, the published results will be presented in summary form only.

The findings from this project may provide information on the training, work description and the kind of support peer counselors provide pregnant and nursing mothers. There are no known risks or discomforts associated with this research.

If you have any questions about this survey, please feel free to call either Anne Andrianos (315-382-4768) or Alex Anderson (706-542-7614)or send an e-mail to AAndrianos@iblce.org, or anderson@fcs.uga.edu respectively. Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199; email address irb@uga.edu.

By clicking YES (I agree to participate in this survey) below, you are agreeing to participate in the above described survey project.

Thank you for your consideration! Please print and keep this letter for your records.

Sincerely,

Anne Andrianos, RN, MS, Project Manager

Alex Anderson, PhD, MPH, CPH

*** 1. I agree to participate in this survey.**

- ◯ Yes
- ◯ No

2. Welcome

Thank you for taking the time to complete this survey. The information that you share may help create a new role for the community-based breastfeeding counselor.

Here are some instructions to help you with the survey:

There are 35 questions in this survey.
After reading each question and the answers, move the cursor onto the circle or square in front of your chosen answer(s) and click. Keep answering the questions, all the way down the page, then click on "Next". You will move on to the next page.

Most questions MUST be answered because your answers are very important. (These questions have a * in front of them). If you cannot move forward to the next page, it is because you did not answer a question. The unanswered question will be marked in red. Go back to the question and answer it, and then click on "Next". You can move back, if you need to change an answer by clicking "Prev" on the bottom of the page.

The black bar at the top of the page tells you how close to the end of the survey you are.

It is best to finish the survey in ONE session, that will take about 15 minutes. All your answers are important and you will remain anonymous! Be sure you click on "Done" when you finish the survey. Thank you, again.

The first question is easy...Let's get started!

*** 1. In which position do you do MOST of your breastfeeding work?**

- ◯ Paid FULL time work
- ◯ Paid PART time work
- ◯ Volunteer (unpaid)

3. Paid Work

The next several questions are about your breastfeeding work, how you became a breastfeeding counselor and what you do. Your answers are very important as they help describe your role and how families can access your services.

*** 1. Under which job title do you do most of your breastfeeding work?**

- ◯ Childbirth educator
- ◯ Childcare worker (day care)
- ◯ Community Health Worker (CHW)
- ◯ Dietitian Technician - Registered (DT-R)
- ◯ Doula - birth
- ◯ Doula - post-partum
- ◯ Health care provider office staff
- ◯ Home health visitor
- ◯ Nurse (LVN or LPN)
- ◯ Nurse (RN)
- ◯ Nurse aid
- ◯ Nutritionist
- ◯ Nutrition aid/educator
- ◯ Peer counselor
- ◯ Retail store clerk (maternity, infant, breastfeeding store)
- ◯ Other

Other (please specify in space below)

*** 2. For what agency or business do you do breastfeeding work?**

- ◯ Community health clinic
- ◯ Cooperative Extension
- ◯ Early Head Start
- ◯ Healthy Start
- ◯ Hospital NICU
- ◯ Hospital maternity unit
- ◯ Hospital pediatric unit
- ◯ Military program
- ◯ Natural foods/nutrition store
- ◯ Public health department (not WIC)
- ◯ Retail store (maternity, infant , breastfeeding store)
- ◯ Women, Infant and Children (WIC)
- ◯ Other

Other (please specify in space below)

*** 3. How many days a week do you use your breastfeeding skills in your job?**

- ◯ Up to 1 day
- ◯ Up to 2 days
- ◯ Up to 3 days
- ◯ Up to 4 days
- ◯ Up to 5 days

*** 4. About how much do you make in an hour?**

- ◯ Less than $10
- ◯ $10 - $15
- ◯ $16 - $20
- ◯ More than $20

*** 5. As part of your contract with your employer, are you available to your breastfeeding clients at times other than regular work hours?**

- ◯ Yes
- ◯ No

*** 6. Are benefits (like health insurance or continuing education, vacation days, etc.) included with your employment?**

- ◯ Yes
- ◯ No

*** 7. What kind of training or course(s) did you take to become a breastfeeding counselor? (You can check more than one answer).**

- ☐ A training or course that was less than 10 hours
- ☐ A 10-20 hour training or course
- ☐ A training or course that was more than 20 hours
- ☐ Several trainings, classes or courses over time

*** 8. Did any of your training include "hands on" practice or watching mothers and babies breastfeed "up close"?**

- ◯ Yes
- ◯ No

*** 9. How do you continue your breastfeeding education? (You can check more than one answer).**

- ☐ Go to one conference a year
- ☐ Go to trainings at my job
- ☐ Go to conferences and trainings away from the job
- ☐ Study on my own time
- ☐ Have not had additional training or education

10. Do you hold another breastfeeding title or credential? (You can check more than one answer).

- ☐ International Board Certified Lactation Consultant (IBCLC)
- ☐ Certified Lactation Counselor (CLC)
- ☐ Certified lactation Educator (CLE)
- ☐ La Leche League Leader
- ☐ Other

Other (please specify)

4. Volunteer

The next several questions are about your volunteer (unpaid) work, how you became a breastfeeding counselor and what you do. Your answers are very important as they help describe your role and how families can access your services.

*** 1. For what organization or in what setting do you do MOST of your volunteer service?**

- ◯ Breastfeeding support organization (like La Leche League)
- ◯ Community based organization (like Black Mothers Nursing Association)
- ◯ Doula project (like Operation Special Delivery)
- ◯ Government sponsored service
- ◯ Hospital post-partum unit
- ◯ Hospital NICU
- ◯ Mother-baby group (like a play or exercise group)
- ◯ Mother's home
- ◯ Mothering information/support group (like Holistic Moms)
- ◯ New mothers internet group, list-serv,blog,
- ◯ Other

Other (please specify)

*** 2. About how many days a week do you use your breastfeeding knowledge and skills helping others?**

- ◯ Fewer than half a day
- ◯ Half day
- ◯ Up to 1 day
- ◯ Up to 2 days
- ◯ Up to 3 days
- ◯ Up to 4 days
- ◯ Up to 5 days

3. As part of your volunteer commitment, are you available to breastfeeding mothers at times other than "regular work" hours?

- ◯ Yes
- ◯ No
- ◯ Does not apply

*** 4. Are you paid for transportation and child care while you do volunteer work?**

- ◯ Yes
- ◯ No

*** 5. What kind of training or course(s) did you take to prepare to be a breastfeeding counselor? (You can check more than one answer).**

- ☐ A training or class that was less than 10 hours
- ☐ A 10-20 hour training or course
- ☐ A training or course that was more than 20 hours
- ☐ Several classes, trainings, and/or courses over time

*** 6. Did any of your training include "hands on" practice or watching mothers and babies breastfeed up close?**

- ◯ Yes
- ◯ No

*** 7. How do you continue your breastfeeding education? (You can check more than one answer).**

- ☐ Go to one conference a year
- ☐ Go to trainings provided by my volunteer organization
- ☐ Go to conferences and trainings in my community
- ☐ Study on my own time (reading breastfeeding books and magazines)
- ☐ Have not had more training or education

8. Do you hold another breastfeeding title or credential? (You may check more than one answer).

- [ ] IBCLC (International Board Certified Lactation Consultant)
- [ ] CLC (Certified Lactation Counselor)
- [ ] CLE (Certified Lactation Educator)
- [ ] LE (Lactation Educator)
- [ ] LLL Leader (La Leche League Leader)
- [ ] Other

Other (please specify)

5. Counseling Skills

These questions ask about how you develop supportive relationships with women. The questions ask about counseling skills and how often you have contact with women during pregnancy and after their babies are born.

There are many parts or answers to the questions that follow. All answers are important so try and answer them all!

*** 1. How often do you do the following activities:**

	Never	Rarely	Sometimes	Often
Counsel mothers "face to face" at your work or volunteer site	◯	◯	◯	◯
Counsel mothers "face to face" in a group meeting	◯	◯	◯	◯
Counsel mothers "face to face" in their homes	◯	◯	◯	◯
Counsel mothers "face to face" in the hospital (maternity unit)	◯	◯	◯	◯
Counsel mothers "face to face", at the hospital, who have babies in the NICU	◯	◯	◯	◯
Counsel mothers by phone	◯	◯	◯	◯
Counsel mothers using the internet	◯	◯	◯	◯
Plan and teach a pre-natal breastfeeding class	◯	◯	◯	◯
Lead a breastfeeding support group meeting	◯	◯	◯	◯
Plan and teach a "back to work/school" breastfeeding class	◯	◯	◯	◯

*** 2. How often do you have this level of contact (this includes home/office visits, phone calls, mailings) with mothers during pregnancy?**

	Never	Rarely	Sometimes	Often
3-7 times	◯	◯	◯	◯
1-2 times	◯	◯	◯	◯

*** 3. How often do you have this level of contact with mothers and babies in the hospital after the baby is born?**

	Never	Rarely	Sometimes	Often
1-3 times	◯	◯	◯	◯
3 or more times when baby is in the NICU	◯	◯	◯	◯

*** 4. How often do you have this level of contact (this includes home/office visits, phone calls, mailings)with mothers and babies after birth?**

	Never	Rarely	Sometimes	Often
1-3 times during the first week	◯	◯	◯	◯
1-5 times between 2 and 6 weeks	◯	◯	◯	◯
1-6 times between 7 weeks and 6 months	◯	◯	◯	◯
1-6 times between 7 months and 12 months	◯	◯	◯	◯
1-6 times between 12 months and 24 months	◯	◯	◯	◯

*** 5. How often do you use following skills when working with pregnant and breastfeeding women?**

	Never	Rarely	Sometimes	Often
Use "client centered" counseling skills (like 3 Step)	◯	◯	◯	◯
Use "active listening" skills	◯	◯	◯	◯
Use information gathering or history taking skills	◯	◯	◯	◯
Use phone counseling (triage) skills	◯	◯	◯	◯
Encourage informed decision making by parent(s)	◯	◯	◯	◯
Show sensitivity to family's cultural practices	◯	◯	◯	◯
Use a language other than English in your breastfeeding work	◯	◯	◯	◯
Read instructions or directions for clients who are unable to read well	◯	◯	◯	◯
Write out forms for clients who cannot do so	◯	◯	◯	◯
Identify social service needs (like housing or food needs)	◯	◯	◯	◯
Encourage or make referrals to social service agencies	◯	◯	◯	◯
Identify breastfeeding problems	◯	◯	◯	◯

6. Management

These questions, ask you about the tasks you DO and DON'T do as a breastfeeding counselor.

Again, there are many parts or answers to the questions that follow. All answers are important so try and answer them all!

* 1. How often do you discuss the following topics with pregnant mothers

	Never	Rarely	Sometimes	Often
Health risks of formula feeding	◯	◯	◯	◯
Normal breastfeeding patterns	◯	◯	◯	◯
Food preparation and storage safety	◯	◯	◯	◯
Making a plan for pumping and storing milk at work	◯	◯	◯	◯
Tips for nursing in public	◯	◯	◯	◯
Signs of good milk intake by the baby	◯	◯	◯	◯
Food choices high in vitamins and minerals	◯	◯	◯	◯
Different nursing positions	◯	◯	◯	◯
Inverted nipples and recommend breast shells	◯	◯	◯	◯
Care of the breasts during pregnancy	◯	◯	◯	◯
How colostrum and milk are made	◯	◯	◯	◯

* 2. How often do you discuss these topics with breastfeeding mothers

	Never	Rarely	Sometimes	Often
Sex and family planning options	◯	◯	◯	◯
Introducing a bottle (for the working mother)	◯	◯	◯	◯
Calorie intake to support lactation	◯	◯	◯	◯
Non-medical ways to increase milk supply(like nurse frequently)	◯	◯	◯	◯
How to manage leaking breasts	◯	◯	◯	◯
Breastfeeding after breast reduction surgery	◯	◯	◯	◯
Pumping and storage of milk if baby is in the NICU	◯	◯	◯	◯
Weight loss suggestions for the mother	◯	◯	◯	◯
Treating mastitis	◯	◯	◯	◯
When to introduce solids to the baby	◯	◯	◯	◯

*** 3. How often do you do these tasks with or for breastfeeding mothers?**

	Never	Rarely	Sometimes	Often
Ask permission to touch her baby	◯	◯	◯	◯
Help position baby (hands on)	◯	◯	◯	◯
Observe a feeding	◯	◯	◯	◯
Do a breast exam to check for a plugged duct or mass	◯	◯	◯	◯
Teach hand expression	◯	◯	◯	◯
Teach mothers how to use a breastpump	◯	◯	◯	◯
Show mothers how to use a supplemental (tube) feeding device	◯	◯	◯	◯
Bring mothers breastfeeding DVDs or books	◯	◯	◯	◯
Suggest ways to avoid problems (like feed often to avoid engorgement)	◯	◯	◯	◯
Recommend a medication for increasing milk supply	◯	◯	◯	◯
Observe home setting for safety	◯	◯	◯	◯
Recommend an exercise plan for weight loss	◯	◯	◯	◯
Suggest non-medical treatments like cold packs, warm showers, and rest	◯	◯	◯	◯
Refer mother to a community based breastfeeding support group like La Leche League	◯	◯	◯	◯

*** 4. How often do you do these tasks with babies?**

	Never	Rarely	Sometimes	Often
Finger assessment of the mouth	◯	◯	◯	◯
Check output by counting wet and soiled diapers	◯	◯	◯	◯
Check weight with a scale	◯	◯	◯	◯
Check for tongue tie	◯	◯	◯	◯
Recommend feeding schedule for increasing weight gain	◯	◯	◯	◯
Correct a poor latch (hands on)	◯	◯	◯	◯
Observe for proper physical development	◯	◯	◯	◯
Assess for jaundice	◯	◯	◯	◯
Teach tongue exercises for the baby with a latch problem	◯	◯	◯	◯
Offer guidance about infant safety	◯	◯	◯	◯

*** 5. How often do you refer a mother to a health care professional (examples: IBCLC, midwife, physician) for breastfeeding help?**

- ◯ Never
- ◯ Rarely
- ◯ Occasionally
- ◯ Frequently

*** 6. What is the title of the person who checks your work, your written records, who gives you help (supervisor)? You can check more than one answer.**

- [ ] RD
- [ ] RN
- [ ] IBCLC
- [ ] CLC
- [ ] Trained person in my volunteer organization (DA or APL)
- [ ] Don't have a supervisor
- [ ] Other

Other (please specify)

*** 7. In case you need help or want to refer a mother or baby for breastfeeding help, how close is the nearest IBCLC?**

- ◯ There is an IBCLC at my work or in my volunteer organization for immediate contact
- ◯ Less than 5 miles
- ◯ Between 6-25 miles
- ◯ Between 26-50 miles
- ◯ Over 50 miles

*** 8. How often do you refer a mother to a community resource (like WIC, a food bank, a domestic violence shelter, a job training program) for assistance?**

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often

7. Experience & Education

You are getting close to the end! Just a few quick questions about you!

*** 1. For how many months/years (total) did you nurse your baby or babies?**

- ◯ 1-4 months
- ◯ 5-6 months
- ◯ 6-12 months
- ◯ more than 12 months
- ◯ Other

Other (please specify)

*** 2. For how long have you helped breastfeeding mothers and babies?**

- ◯ Less than 1 year
- ◯ 1-4 years
- ◯ 5-9 years
- ◯ 10-15 years
- ◯ Over 15 years

*** 3. How many years of high school did you finish?**

- ◯ 1 year
- ◯ 2 years
- ◯ 3 years
- ◯ 4 years

4. Did you go to any of these vocational trainings or classes? (You may check more than one.)

- [ ] Child care
- [ ] Computer
- [ ] Cosmetology
- [ ] Cardio Pulmonary Resuscitation (CPR)
- [ ] Emergency Medical Technician (EMT)
- [ ] English as a Second Language (ESL)
- [ ] Foreign language
- [ ] Massage
- [ ] Nurses aid
- [ ] Nutrition
- [ ] None
- [ ] Other

Other (please specify)

5. Do you have a Vocational Diploma or an Associate Degree?

- ◯ Yes
- ◯ No

*** 6. How many years of college or university did you attend? (Do not include Associate Degree program).**

- ◯ Did not attend college
- ◯ Under 1
- ◯ 1 year
- ◯ 2 years
- ◯ 3 years
- ◯ 4 years
- ◯ More than 5 years

8. Demographics

Just some statistics...3 more questions!

*** 1. In which setting do you work or volunteer?**

- ◯ Rural: under 10,000 people
- ◯ Small city: 10-100,000 people
- ◯ Medium city: 100-500,000 people
- ◯ Urban large city: over 500,000 people
- ◯ Suburb near a medium or large city

2. Are you female or male?

- ◯ Female
- ◯ Male

3. How old are you?

- ◯ Under 20
- ◯ 20-29
- ◯ 30-39
- ◯ 40-49
- ◯ 50-59
- ◯ Over sixty

9. Race/ethnicity

Providing breastfeeding assistance at the community level is very important for families. In order to get funding (money) for community breastfeeding counselor programs, it is important to collect information about the race and ethnicity of peer counselors, nutrition educators/assistants, home visitors and the women and babies they help. Your answers will provide important information.

You do not have to answer these questions. If you choose to answer the questions, please remember, your answers are confidential and there is no way your your answers can be traced.

1. What is your race or ethnic group?

- ◯ Asian American
- ◯ Black/African American
- ◯ Latino/Hispanic American
- ◯ Native American
- ◯ Multiracial American
- ◯ White Caucasian
- ◯ Other

Other (please specify)

2. From which race or ethnic group are the mothers and babies that you most frequently work with?

- ☐ Asian American
- ☐ Black/African American
- ☐ Latino Hispanic American
- ☐ Native American
- ☐ Multiracial American
- ☐ White Caucasian
- ☐ Other

Other (please specify)

3. Many of your clients may be new to this country (immigrants). From which race or ethnic group are the mothers and babies that you most frequently help?

- [ ] African
- [ ] Asian (including Indian)
- [ ] Caribbean
- [ ] Eastern European (including Russian and Ukrainian)
- [ ] Hispanic
- [ ] Middle Eastern
- [ ] Western European
- [ ] Other (If you want to be more specific, for example you work with many Chinese families, please write "Chinese" in the box below).

Other (please specify)

10. The last comment

What else would you like to say?

1. If you would like to add a comment or tell us about something special about your work, please write about it here.

11. End

This is the end of the survey! THANK YOU for your time.
Be sure to click "DONE" when you finish.

APPENDIX B

SUPPORTING TABLES

Table A.1: Types of Communication Used by Breastfeeding Peer Counselors by Continuing Education

	One Conference per year n (%)	Training at Work n (%)	Training Away From Work n (%)	Study on Own n (%)	No continuing education n (%)	P-Value
Counsel mothers face-to-face						<0.001
Never	11 (16.9)	54 (15.9)	16 (5.0)	20 (25.0)	7 (17.5)	
Rarely	7 (10.8)	45 (13.3)	28 (8.7)	11 (13.8)	5 (12.5)	
Sometimes	14 (21.5)	82 (24.2)	72 (22.3)	18 (22.5)	12 (30.0)	
Often	33 (50.8)	158 (46.6)	207 (64.1)	31 (38.8)	16 (40.0)	
Counsel mothers by phone						<0.001
Never	1 (1.5)	13 (3.8)	12 (3.7)	5 (6.3)	14 (35.0)	
Rarely	2 (3.1)	13 (3.8)	17 (5.3)	10 (12.5)	4 (10.0)	
Sometimes	25 (38.5)	90 (26.5)	82 (25.4)	31 (38.8)	14 (35.0)	
Often	37 (56.9)	223 (65.8)	212 (65.6)	34 (42.5)	8 (20.0)	
Plan and teach "back to work/school" classes						<0.001
Never	52 (80.0)	228 (67.3)	181 (56.0)	67 (83.8)	37 (92.5)	
Rarely	7 (10.8)	55 (16.2)	57 (17.6)	8 (10.0)	2 (5.0)	
Sometimes	5 (7.7)	38 (11.2)	53 (16.4)	4 (5.0)	0 (0.0)	
Often	1 (1.5)	18 (5.3)	32 (9.9)	1 (1.3)	1 (2.5)	

Table A.2: Counseling Skills Used by Breastfeeding Peer Counselors Continuing Education

	One Conference per year n (%)	Training at Work n (%)	Training Away From Work n (%)	Study on Own n (%)	No continuing education n (%)	P-Value
Client-centered counseling skills						<0.001
Never	9 (13.8)	84 (24.8)	25 (7.7)	25 (31.3)	12 (30.0)	
Rarely	2 (3.1)	21 (6.2)	15 (4.6)	7 (8.8)	2 (5.0)	
Sometimes	21 (32.3)	61 (18.0)	67 (20.7)	20 (25.0)	10 (25.0)	
Often	33 (50.8)	173 (51.0)	216 (66.9)	28 (35.0)	16 (40.0)	

Table A.2: Counseling Skills Used by Breastfeeding Peer Counselors Continuing Education

	One Conference per year n (%)	Training at Work n (%)	Training Away From Work n (%)	Study on Own n (%)	No continuing education n (%)	P-Value
Active listening skills						0.009
Never	0 (0.0)	1 (0.3)	3 (0.9)	0 (0.0)	2 (5.0)	
Rarely	0 (0.0)	3 (0.9)	4 (1.2)	0 (0.0)	1 (2.5)	
Sometimes	4 (6.2)	19 (5.6)	20 (6.2)	11 (13.8)	6 (15.0)	
Often	61 (93.8)	316 (93.2)	296 (91.6)	69 (86.3)	31 (77.5)	
Referrals to social service agencies						<0.001
Never	23 (35.4)	89 (26.3)	38 (11.8)	22 (27.5)	8 (20.0)	
Rarely	17 (26.2)	100 (29.5)	86 (26.6)	27 (33.8)	4 (10.0)	
Sometimes	22 (33.8)	79 (23.3)	111 (34.4)	14 (17.5)	12 (30.0)	
Often	3 (4.6)	71 (20.9)	88 (27.2)	17 (21.3)	16 (40.0)	
Identify breastfeeding problems						<0.001
Never	1 (1.5)	6 (1.8)	3 (0.9)	0 (0.0)	4 (10.0)	
Rarely	1 (1.5)	13 (3.8)	9 (2.8)	3 (3.8)	8 (20.0)	
Sometimes	18 (27.7)	68 (20.1)	64 (19.8)	28 (35.0)	13 (32.5)	
Often	45 (69.2)	252 (74.3)	247 (76.5)	49 (61.3)	15 (37.5)	

Table A.3: Use of Hands-on Techniques by Breastfeeding Peer Counselors by Continuing Education

	One Conference per year n (%)	Training at Work n (%)	Training Away From Work n (%)	Study on Own n (%)	No continuing education n (%)	P-Value
Help position baby (hands-on)						<0.001
Never	8 (12.3)	42 (12.4)	36 (11.1)	6 (7.5)	14 (35.0)	
Rarely	19 (29.2)	69 (20.4)	45 (13.9)	12 (15.0)	8 (20.0)	
Sometimes	15 (23.1)	114 (33.6)	93 (28.8)	23 (28.7)	6 (15.0)	
Often	23 (35.4)	114 (33.6)	149 (46.1)	39 (48.8)	12 (3.0)	

Table A.3: Use of Hands-on Techniques by Breastfeeding Peer Counselors by Continuing Education

Teach hand expression						<0.001
Never	8 (12.3)	69 (20.4)	37 (11.5)	25 (31.3)	22 (55.0)	
Rarely	29 (44.6)	92 (27.1)	71 (22.0)	25 (31.3)	10 (25.0)	
Sometimes	18 (27.7)	121 (35.7)	113 (35.0)	21 (26.3)	4 (10.0)	
Often	10 (15.4)	57 (16.8)	102 (31.6)	9 (11.3)	4 (10.0)	
Finger assessment of the mouth						0.001
Never	41 (63.1)	216 (63.7)	168 (52.0)	58 (72.5)	30 (75.0)	
Rarely	8 (12.3)	66 (19.5)	68 (21.1)	10 (12.5)	3 (7.5)	
Sometimes	11 (16.9)	45 (13.3)	51 (15.8)	7 (8.8)	6 (15.0)	
Often	5 (7.7)	12 (3.5)	36 (11.1)	5 (6.3)	1 (2.5)	
Correct a poor latch (hands-on)						<0.001
Never	16 (24.6)	83 (24.5)	64 (19.8)	19 (23.8)	25 (62.5)	
Rarely	12 (18.5)	57 (16.8)	43 (13.3)	13 (16.3)	4 (10.0)	
Sometimes	19 (29.2)	101 (29.8)	84 (26.0)	22 (27.5)	4 (10.0)	
Often	18 (27.7)	98 (28.9)	132 (40.9)	26 (32.5)	7 (17.5)	

Table A.4: Unadjusted logistic regression for predictors of counseling mothers face-to-face at the workplace

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	4.27	2.37 - 7.69	<0.001
Paid Part Time	3.38	2.06 - 5.55	<0.001
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	2.68	1.05 - 6.83	0.040
Did not complete college	1.41	0.89 - 2.24	NS
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	1.04	0.37 - 2.95	NS
Go to training at my job	1.12	0.47 - 2.66	NS
Go to conferences and trainings away from the job	4.07	1.56 - 10.61	0.004
Study on my own time	0.64	0.24 - 1.66	NS
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	0.84	0.32 - 2.24	NS
30 - 39 years	0.97	0.39 - 2.43	NS
40 - 49 years	1.02	0.39 - 2.63	NS
50 - 59 years	1.47	0.54 - 4.03	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	2.55	0.90 - 7.18	0.077
Latino/Hispanic	2.43	1.03 - 5.73	0.042
Multiracial	2.72	0.36 - 20.73	NS
Other*	1.19	0.45 - 3.11	NS
White/Caucasian	1.00	-	-

Table A.4: Unadjusted logistic regression for predictors of counseling mothers face-to-face at the workplace

Community setting			
Rural: under 10,000 people	2.75	1.20 - 6.32	0.017
Small city: 10 - 100,000 people	1.40	0.76 - 2.57	NS
Medium city: 100 - 500,000 people	1.84	0.94 - 3.59	0.074
Urban large city: over 500,000 people	1.21	0.64 - 2.28	NS
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	1.81	0.71 - 4.59	NS
1 - 4 months	1.89	0.54 - 6.60	NS
5 - 6 months	4.00	0.52 - 30.86	NS
6 - 12 months	2.25	0.89 - 5.69	0.087
12 - 24 months	0.96	0.59 - 1.56	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.41	0.18 - 0.93	0.032
1 - 4 years	0.51	0.26 - 0.99	0.048
5 - 9 years	0.65	0.31 - 1.36	NS
10 - 15 years	0.84	0.35 - 2.03	NS
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

Table A.5: Unadjusted logistic regression for predictors of counseling mothers by phone

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	0.10	0.03 - 0.33	<0.001
Paid Part Time	0.14	0.14 - 0.04	0.002
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	0.58	0.23 - 1.48	NS
Did not complete college	0.67	0.35 - 1.29	NS
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	34.46	4.31 - 275.66	0.001
Go to training at my job	13.50	5.75 - 31.72	<0.001
Go to conferences and trainings away from the job	13.96	5.85 - 33.27	<0.001
Study on my own time	8.08	2.65 - 24.61	<0.001
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	1.23	0.37 - 4.12	NS
30 - 39 years	3.96	1.11 - 14.10	0.034
40 - 49 years	1.65	0.50 - 5.45	NS
50 - 59 years	1.09	0.34 - 3.52	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	8.03	0.000	NS
Latino/Hispanic	0.33	0.16 - 0.67	0.002
Multiracial	0.80	0.10 - 6.19	NS
Other*	0.94	0.22 - 4.10	NS
White/Caucasian	1.00	-	-

Table A.5: Unadjusted logistic regression for predictors of counseling mothers by phone

Community setting			
Rural: under 10,000 people	0.72	0.20 - 2.63	NS
Small city: 10 - 100,000 people	0.64	0.20 - 2.01	NS
Medium city: 100 - 500,000 people	0.60	0.19 - 1.93	NS
Urban large city: over 500,000 people	0.56	0.17 - 1.81	NS
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	0.08	0.02 - 0.27	<0.001
1 - 4 months	0.05	0.01 - 0.20	<0.001
5 - 6 months	0.04	0.01 - 0.18	<0.001
6 - 12 months	0.71	0.12 - 4.34	NS
12 - 24 months	0.66	0.18 - 2.40	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.28	0.10 - 0.80	0.017
1 - 4 years	0.94	0.36 - 2.51	NS
5 - 9 years	0.87	0.30 - 2.49	NS
10 - 15 years	0.85	0.25 - 2.86	NS
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

Table A.6: Unadjusted logistic regression for predictors of planning and teaching a "back to work/school" breastfeeding class

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	1.44	1.01 - 2.07	0.044
Paid Part Time	1.10	0.78 - 1.54	NS
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	1.42	0.87 - 2.33	NS
Did not complete college	1.96	1.44 - 2.68	<0.001
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	3.08	0.82 - 11.59	NS
Go to training at my job	6.00	1.81 - 19.90	0.003
Go to conferences and trainings away from the job	9.68	2.92 - 32.03	<0.001
Study on my own time	2.39	0.64 - 8.94	NS
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	0.51	0.26 - 0.99	0.049
30 - 39 years	0.45	0.24 - 0.85	0.013
40 - 49 years	0.62	0.32 - 1.18	NS
50 - 59 years	0.58	0.30 - 1.12	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	2.10	1.25 - 3.53	0.005
Latino/Hispanic	1.44	0.92 - 2.26	NS
Multiracial	0.30	0.07 - 1.32	NS
Other*	1.65	0.86 - 3.16	NS
White/Caucasian	1.00	-	-

Table A.6: Unadjusted logistic regression for predictors of planning and teaching a "back to work/school" breastfeeding class

Community setting			
Rural: under 10,000 people	1.39	0.80 - 2.41	NS
Small city: 10 - 100,000 people	1.20	0.73 - 1.95	NS
Medium city: 100 - 500,000 people	1.64	0.99 - 2.70	0.054
Urban large city: over 500,000 people	1.09	0.65 - 1.84	NS
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	0.38	0.20 - 0.72	0.003
1 - 4 months	0.57	0.26 - 1.24	NS
5 - 6 months	0.48	0.18 - 1.27	NS
6 - 12 months	0.73	0.42 - 1.24	NS
12 - 24 months	0.79	0.56 - 1.13	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.42	0.23 - 0.77	0.005
1 - 4 years	0.53	0.36 - 0.80	0.003
5 - 9 years	0.75	0.48 - 1.17	NS
10 - 15 years	0.88	0.53 - 1.47	NS
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

Table A.7: Unadjusted logistic regression for predictors of using client-centered counseling skills

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	6.60	3.82 - 11.41	<0.001
Paid Part Time	4.07	2.65 - 6.24	<0.001
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	2.05	1.03 - 4.11	0.042
Did not complete college	1.94	1.28 - 2.94	0.002
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	2.67	1.01 - 7.08	0.049
Go to training at my job	1.30	0.63 - 2.67	NS
Go to conferences and trainings away from the job	5.11	2.32 - 11.26	<0.001
Study on my own time	0.94	0.41 - 2.15	NS
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	0.77	0.27 - 2.19	NS
30 - 39 years	0.51	0.19 - 1.33	NS
40 - 49 years	0.44	0.16 - 1.18	NS
50 - 59 years	0.56	0.20 - 1.54	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	3.91	1.39 - 10.95	0.010
Latino/Hispanic	1.74	0.92 - 3.28	0.089
Multiracial	1.22	0.34 - 4.29	NS
Other*	1.82	0.70 - 4.75	NS
White/Caucasian	1.00	-	-

Table A.7: Unadjusted logistic regression for predictors of using client-centered counseling skills

Community setting			
Rural: under 10,000 people	1.18	0.64 - 2.20	NS
Small city: 10 - 100,000 people	1.08	0.63 - 1.85	NS
Medium city: 100 - 500,000 people	1.74	0.96 - 3.15	0.068
Urban large city: over 500,000 people	1.93	1.05 - 3.57	0.036
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	2.44	1.08 - 5.48	0.031
1 - 4 months	1.98	0.73 - 5.40	NS
5 - 6 months	2.27	0.65 - 7.95	NS
6 - 12 months	2.68	1.24 - 5.79	0.012
12 - 24 months	1.27	0.84 - 1.93	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.88	0.44 - 1.76	NS
1 - 4 years	0.87	0.52 - 1.45	NS
5 - 9 years	0.89	0.51 - 1.56	NS
10 - 15 years	1.14	0.57 - 2.25	NS
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

Table A.8: Unadjusted logistic regression for predictors of encouraging or making referrals to social service agencies

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	12.95	6.78 - 24.73	<0.001
Paid Part Time	3.22	2.20 - 4.70	<0.001
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	2.18	1.12 - 4.23	0.022
Did not complete college	1.74	1.19 - 2.55	0.005
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	0.46	0.18 - 1.15	NS
Go to training at my job	0.70	0.31 - 1.58	NS
Go to conferences and trainings away from the job	1.88	0.81 - 4.37	NS
Study on my own time	0.66	0.26 - 1.65	NS
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	0.30	0.09 - 1.05	0.060
30 - 39 years	0.17	0.05 - 0.55	0.003
40 - 49 years	0.27	0.08 - 0.93	0.037
50 - 59 years	0.44	0.13 - 1.56	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	2.29	1.07 - 4.90	0.034
Latino/Hispanic	2.68	1.36 - 5.29	0.005
Multiracial	5.22	0.79 - 39.69	NS
Other*	2.29	0.88 - 5.93	0.090
White/Caucasian	1.00	-	-

Table A.8: Unadjusted logistic regression for predictors of encouraging or making referrals to social service agencies

Community setting			
Rural: under 10,000 people	2.85	1.54 - 5.27	0.001
Small city: 10 - 100,000 people	2.08	1.27 - 3.42	0.004
Medium city: 100 - 500,000 people	2.36	1.39 - 4.01	0.001
Urban large city: over 500,000 people	2.34	1.37 - 4.00	0.002
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	7.45	2.23 - 24.83	0.001
1 - 4 months	11.83	1.58 - 88.72	0.016
5 - 6 months	3.78	0.86 - 16.65	0.079
6 - 12 months	2.05	1.02 - 4.12	0.043
12 - 24 months	0.92	0.62 - 1.37	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.64	0.33 - 1.26	NS
1 - 4 years	0.55	0.33 - 0.91	0.021
5 - 9 years	0.63	0.36 - 1.09	0.099
10 - 15 years	1.43	0.68 - 3.03	NS
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

Table A.9: Unadjusted logistic regression for predictors of identifying breastfeeding problems

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	0.77	0.19 - 3.09	NS
Paid Part Time	0.66	0.18 - 2.35	NS
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	0.57	0.12 - 2.78	NS
Did not complete college	0.74	0.23 - 2.35	NS
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	7.11	0.77 - 66.07	NS
Go to training at my job	6.17	1.66 - 22.88	0.007
Go to conferences and trainings away from the job	11.85	2.55 - 55.07	0.002
Study on my own time	1.80	0.000	NS
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	2.06	0.33 - 12.73	NS
30 - 39 years	3.34	0.59 - 18.78	NS
40 - 49 years	9.14	0.81 - 103.01	0.073
50 - 59 years	1.80	0.32 - 10.13	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	2.59	0.00	NS
Latino/Hispanic	0.48	0.13 - 1.76	NS
Multiracial	2.59	0.00	NS
Other*	0.63	0.08 - 5.01	NS
White/Caucasian	1.00	-	-

Table A.9: Unadjusted logistic regression for predictors of identifying breastfeeding problems

Community setting			
Rural: under 10,000 people	0.27	0.03 - 2.43	NS
Small city: 10 - 100,000 people	0.42	0.05 - 3.63	NS
Medium city: 100 - 500,000 people	0.84	0.08 - 9.41	NS
Urban large city: over 500,000 people	0.79	0.07 - 8.82	NS
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	0.22	0.05 - 0.95	0.043
1 - 4 months	0.29	0.05 - 1.82	NS
5 - 6 months	0.40	0.40 - 4.02	NS
6 - 12 months	2.71	0.00	NS
12 - 24 months	2.47	0.49 - 12.35	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.11	0.01 - 0.95	0.045
1 - 4 years	0.44	0.05 - 3.78	NS
5 - 9 years	0.43	0.04 - 4.20	NS
10 - 15 years	1.11	0.000	NS
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

Table A.10: Unadjusted logistic regression for predictors of helping position baby (hands-on)

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	1.71	0.92 - 3.18	0.089
Paid Part Time	0.55	0.35 - 0.87	0.011
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	0.66	0.35 - 1.22	NS
Did not complete college	1.29	0.80 - 2.08	NS
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	3.84	1.43 - 10.27	0.007
Go to training at my job	3.81	1.84 - 7.87	<0.001
Go to conferences and trainings away from the job	4.29	2.06 - 8.97	<0.001
Study on my own time	6.64	2.31 - 19.08	<0.001
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	0.23	0.05 - 1.01	0.052
30 - 39 years	0.30	0.70 - 1.30	NS
40 - 49 years	0.35	0.08 - 1.56	NS
50 - 59 years	0.34	0.08 - 1.53	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	0.82	0.39 - 1.73	NS
Latino/Hispanic	0.69	0.38 - 1.26	NS
Multiracial	1.01	0.23 - 4.49	NS
Other*	0.94	0.36 - 2.47	NS
White/Caucasian	1.00	-	-

Table A.10: Unadjusted logistic regression for predictors of helping position baby (hands-on)

Community setting			
Rural: under 10,000 people	0.71	0.35 - 1.45	NS
Small city: 10 - 100,000 people	1.26	0.64 - 2.49	NS
Medium city: 100 - 500,000 people	1.39	0.67 - 2.85	NS
Urban large city: over 500,000 people	0.99	0.49 - 1.98	NS
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	0.30	0.19 - 0.83	0.014
1 - 4 months	0.32	0.13 - 0.75	0.009
5 - 6 months	0.86	0.23 - 3.13	NS
6 - 12 months	0.81	0.37 - 1.78	NS
12 - 24 months	0.99	0.56 - 1.73	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.08	0.03 - 0.22	<0.001
1 - 4 years	0.18	0.07 - 0.47	<0.001
5 - 9 years	0.49	0.17 - 1.39	NS
10 - 15 years	0.33	0.11 - 1.01	0.051
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

Table A.11: Unadjusted logistic regression for predictors of finger assessment of baby's mouth

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	1.73	1.22 - 2.44	0.002
Paid Part Time	1.03	0.74 - 1.43	NS
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	0.98	0.61 - 1.59	NS
Did not complete college	1.18	0.87 - 1.60	NS
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	1.76	0.73 - 4.21	NS
Go to training at my job	1.71	0.81 - 3.61	NS
Go to conferences and trainings away from the job	2.77	1.31 - 5.85	0.008
Study on my own time	1.14	0.48 - 2.71	NS
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	0.29	0.15 - 0.59	0.001
30 - 39 years	0.33	0.18 - 0.63	0.001
40 - 49 years	0.53	0.28 - 1.02	0.057
50 - 59 years	0.74	0.38 - 1.44	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	1.36	0.81 - 2.28	NS
Latino/Hispanic	1.10	0.71 - 1.73	NS
Multiracial	1.85	0.70 - 4.85	NS
Other*	1.49	0.78 - 2.82	NS
White/Caucasian	1.00	-	-

Table A.11: Unadjusted logistic regression for predictors of finger assessment of baby's mouth

Community setting			
Rural: under 10,000 people	0.80	0.47 - 1.37	NS
Small city: 10 - 100,000 people	1.14	0.72 - 1.80	NS
Medium city: 100 - 500,000 people	0.97	0.60 - 1.56	NS
Urban large city: over 500,000 people	1.11	0.68 - 1.79	NS
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	0.68	0.38 - 1.22	NS
1 - 4 months	1.68	0.83 - 3.42	NS
5 - 6 months	0.67	0.28 - 1.64	NS
6 - 12 months	0.96	0.57 - 1.62	NS
12 - 24 months	0.91	0.64 - 1.29	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.13	0.07 - 0.25	<0.001
1 - 4 years	0.21	0.14 - 0.32	<0.001
5 - 9 years	0.42	0.27 - 0.65	<0.001
10 - 15 years	0.38	0.23 - 0.64	<0.001
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

Table A.12: Unadjusted logistic regression for predictors of correcting a poor latch (hands-on)

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	0.82	0.55 - 1.23	NS
Paid Part Time	0.70	0.49 - 1.02	0.06
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	0.81	0.48 - 1.35	NS
Did not complete college	1.19	0.83 - 1.70	NS
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	5.10	2.17 - 11.98	<0.001
Go to training at my job	5.14	2.59 - 10.21	<0.001
Go to conferences and trainings away from the job	6.75	3.36 - 13.53	<0.001
Study on my own time	5.35	2.35 - 12.17	<0.001
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	0.41	0.18 - 0.95	0.038
30 - 39 years	0.64	0.29 - 1.43	NS
40 - 49 years	0.71	0.31 - 1.64	NS
50 - 59 years	0.86	0.36 - 2.01	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	0.83	0.46 - 1.48	NS
Latino/Hispanic	0.85	0.51 - 1.40	NS
Multiracial	1.40	0.40 - 4.93	NS
Other*	0.41	0.21 - 0.78	0.007
White/Caucasian	1.00	-	-

Table A.12: Unadjusted logistic regression for predictors of correcting a poor latch (hands-on)

Community setting			
Rural: under 10,000 people	0.76	0.42 - 1.37	NS
Small city: 10 - 100,000 people	0.98	0.58 - 1.67	NS
Medium city: 100 - 500,000 people	1.03	0.59 - 1.79	NS
Urban large city: over 500,000 people	0.84	0.48 - 1.46	NS
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	0.30	0.16 - 0.55	<0.001
1 - 4 months	0.22	0.10 - 0.46	<0.001
5 - 6 months	0.53	0.20 - 1.37	NS
6 - 12 months	0.54	0.29 - 0.99	0.046
12 - 24 months	0.73	0.47 - 1.14	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.21	0.11 - 0.40	<0.001
1 - 4 years	0.32	0.19 - 0.56	<0.001
5 - 9 years	0.61	0.33 - 1.12	NS
10 - 15 years	0.56	0.28 - 1.11	0.094
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities

Table A.13: Unadjusted logistic regression for predictors of teaching how to use a breast pump

	OR	95% CI	P-Value
Employment Status			
Paid Full Time	2.00	1.23 - 3.25	0.005
Paid Part Time	1.53	1.00 - 2.33	0.050
Volunteer/Unpaid	1.00	-	-
Education			
Did not attend any college	1.07	0.57 - 2.03	NS
Did not complete college	1.24	0.82 - 1.89	NS
Completed college	1.00	-	-
Continuing Education			
Go to one conference a year	3.27	1.32 - 8.10	0.010
Go to training at my job	3.10	1.55 - 6.19	0.001
Go to conferences and trainings away from the job	7.62	3.60 - 16.10	<0.001
Study on my own time	1.87	0.84 - 4.19	NS
Have not had additional training or education	1.00	-	-
Age			
Less than 30 years	1.21	0.47 - 3.10	NS
30 - 39 years	0.85	0.36 - 2.00	NS
40 - 49 years	1.16	0.47 - 2.86	NS
50 - 59 years	0.79	0.32 - 1.94	NS
Over 60 years	1.00	-	-
Race/Ethnicity			
Black/African American	1.31	0.63 - 2.73	NS
Latino/Hispanic	1.98	0.97 - 4.06	0.062
Multiracial	3.43	0.45 - 26.15	NS
Other*	2.65	0.80 - 8.73	NS
White/Caucasian	1.00	-	-

Table A.13: Unadjusted logistic regression for predictors of teaching how to use a breast pump

Community setting			
Rural: under 10,000 people	0.78	0.42 - 1.48	NS
Small city: 10 - 100,000 people	1.34	0.74 - 2.42	NS
Medium city: 100 - 500,000 people	1.39	0.74 - 2.59	NS
Urban large city: over 500,000 people	1.55	0.81 - 2.95	NS
Suburban near a medium or large city	1.00	-	-
Personal breastfeeding experience			
Did not breastfeed	0.49	0.25 - 0.97	0.039
1 - 4 months	0.86	0.33 - 2.27	NS
5 - 6 months	0.88	0.28 - 2.76	NS
6 - 12 months	0.87	0.43 - 1.76	NS
12 - 24 months	0.96	0.59 - 1.56	NS
More than 24 months	1.00	-	-
Experience helping breastfeeding mothers and babies			
Less than 1 year	0.29	0.14 - 0.62	0.001
1 - 4 years	0.44	0.23 - 0.82	0.010
5 - 9 years	0.59	0.30 - 1.20	NS
10 - 15 years	0.63	0.28 - 1.40	NS
Over 15 years	1.00	-	-

*Includes Asian American, Native American, and Other races/ethnicities