

BREASTFEEDING AND THE MALE PARTNER:  
ASSOCIATION BETWEEN MALE ATTITUDES AND BREASTFEEDING  
OUTCOMES

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE  
UNIVERSITY OF HAWAI'I AT MĀNOA IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PUBLIC HEALTH

DECEMBER 2011

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Keywords: Breast feeding, social support, partner, father, evidence-based practice,  
intervention

## ACKNOWLEDGEMENTS

I would like to thank my committee chair for pushing me to “keep going” and staying connected with me while completing this process from so far away. I would not be here without her and our weekly phone calls. My committee has been invaluable for their expertise, advice, and patience in communicating only by email and phone. I also give a special thanks to Hawai‘i WIC, and especially the staff at the Honolulu and Wahiawa WIC clinics, for allowing me the opportunity to learn from them and their clients and to Dr. Charles Hardy who has been an incredible sounding board for my research ideas and mentor for my writing. I would also like to thank my husband for supporting me and giving me much needed perspective and my daughter, who was the inspiration for this dissertation study.

## ABSTRACT

The purpose of this three-part dissertation is to understand the importance of informal social support, specifically of the male partner, on breastfeeding intentions and behaviors. It explores the impact male partner perceptions and attitudes may have on breastfeeding and implications for improving breastfeeding outcomes with intervention strategies focusing on male partners. Chapter 1 outlines the benefits of breastfeeding, summarizes data on breastfeeding rates in Hawai‘i and the US, describes the influence that informal support can have on a woman’s breastfeeding behaviors, and presents the purpose and conceptual framework of the dissertation research. Chapter 2 reports the results of a systematic literature review on fathers’ influence on and perceptions of breastfeeding and father-focused interventions to increase breastfeeding and discusses implications for future intervention development. Chapter 3 presents findings from a qualitative study in which male partners of pregnant women and new moms were interviewed regarding their attitudes, knowledge, and feelings about breastfeeding. Chapter 4 investigates the infant-feeding attitudes of WIC mom and partner pairs using a quantitative approach to explore associations between mom and partner attitudes and infant feeding intentions and whether the partner’s infant feeding attitudes influence infant feeding intentions over and above the mom’s attitude. Participants for Chapters 3 and 4 were recruited within the Hawai‘i US Department of Agriculture’s Women, Infants, and Children (WIC) program. Chapter 5 presents the main conclusions of the dissertation research, implications for practice and policy, future research directions, and contributions the research makes to literature. Consistent with recent national and international research, results suggest that the male partners of the Hawai‘i WIC population are an important source of support and influence in the initiation and continuation of breastfeeding. Male partners want to be

more involved in the infant feeding process, but do not feel they have the tools and knowledge to support a breastfeeding mom. To increase breastfeeding rates and change cultural norms related to breastfeeding, it is important to improve male partners' attitudes toward and perceptions of breastfeeding. Findings suggest that an intervention based in Social Cognitive Theory may have the best chance of improving the male partner's knowledge and attitudes about breastfeeding.

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## **CHAPTER 1. INTRODUCTION**

### **Background**

Breastfeeding is considered the best infant feeding method, yet initiation and duration rates in the US are lower than recommended by medical and public health professionals. Although many women successfully initiate breastfeeding after birth, few continue to the US recommended minimum 6 months of age for exclusive breastfeeding or one year of age for partial breastfeeding. Research suggests that informal social support, especially support from fathers or other male partners, has more influence on feeding decisions than advice from healthcare providers and can be especially influential on women of lower educational and socioeconomic levels (Bronner, Barber, & Miele, 2001; Dennis, 2002; Humphreys, Thompson, & Miner, 1998; McInnes & Chambers, 2008; Nelson, 2006).

Research for this dissertation examined the importance of male partner support in breastfeeding using a mixed methods approach. The introduction provides an overview of the benefits of breastfeeding and compares US national objectives for breastfeeding against current statistics of initiation, duration, and exclusivity in the US and in Hawai'i. It also explains the impact of the US Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) on breastfeeding, the importance of social support in breastfeeding, and the role of interventions in increasing breastfeeding rates. It outlines the purpose of the three parts of this dissertation research and presents the conceptual framework used to develop the research approach.

### **Benefits of Breastfeeding**

Human breast milk provides for all medical and health needs of a developing infant. No infant feeding supplement available can replace the benefits that human breast milk can give a growing baby. According to the American Academy of Pediatrics (AAP), breastfeeding provides medical, nutritional, immunologic, developmental, psychological, social, economic, and environmental advantages over other methods of infant feeding. Research suggests that exclusive breastfeeding can reduce the incidence of infectious diseases (like respiratory tract infections, ear infections, and urinary tract infections), the risk of sudden infant death syndrome in the first year of life, and the risk of diabetes, obesity, and asthma later in life (Gartner et al., 2005). In 2008, the Institute of Medicine

(IOM) Committee on Childhood Obesity Prevention Actions for Local Governments identified breastfeeding as one of seven strategies to combat the childhood obesity epidemic (IOM, 2009; Kalies et al., 2005; von Kries, Koletzko, Sauerwald, & von Mutius, 2000).

Exclusive breastfeeding until 6 months of age and continued partial breastfeeding until at least one year of age are recommended by most healthcare professionals, and breastfeeding until 2 years of age is recommended by the United Nations International Children's Emergency Fund (UNICEF) and the World Health Organization (WHO). After recommended timeframes, breastfeeding should continue as long as mutually desired by mother and baby.

Breastfeeding is beneficial for mothers as well as babies. Studies have indicated that breastfeeding helps mothers return to pre-pregnancy weight, decreases their risk of some cancers like breast and ovarian, increases child spacing, and enhances the physical and psychological bond between mother and baby (Gartner et al., 2005). Other research indicates that women who breastfeed for a year or more are 10-15% less likely to develop hypertension, diabetes, hyperlipidemia, and cardiovascular disease when menopausal when compared to women who had been pregnant but never breastfed (Schwarz et al., 2009).

Breastfeeding can result in positive benefits for the family, community, and society because it is a low-cost and low-energy-generating method of feeding a child (Gartner et al., 2005). If a majority of the families in the US exclusively breastfed their infants until 6 months of age, it would save the US \$13 billion a year in healthcare costs associated with infant health and mortality and childhood obesity (Bartick & Reinhold, 2010). Breastfeeding can save an individual family at least \$1,200 in infant formula costs and \$331-\$475 in healthcare costs. It can prevent an excess of 911 deaths, save 110 billion BTUs of energy in processing, packaging, and transporting formula, and prevent approximately 550 million formula cans from entering US landfills each year (Ball & Wright, 1999; Bartick & Reinhold, 2010; United States Breastfeeding Committee [USBC], 2002). Globally, it is estimated that exclusive breastfeeding for the first 6 months of life could prevent 1.4 million deaths of children under the age of 5 in the developing world (UNICEF, 2011).

## **Breastfeeding Goals and Progress**

Breastfeeding initiation rates in the US have increased in the past 40 years from a low of 22% in 1972 to the current rate of 75% (Centers for Disease Control [CDC], 2011; Wright, 2001). The US Department of Health and Human Services (US DHHS) sets 10-year science-based, measurable goals to improve the health of all Americans in the Healthy People (HP) 2010 objectives (CDC, 2010). In 2010, surveillance data indicated that breastfeeding initiation rates met the HP 2010 objectives for the first time since HP objectives were developed in the 1979 Surgeon General's Report, *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention* (US DHHS, 2011). However, most states fell short of the objectives set for breastfeeding rates at 6 (50%) and 12 (25%) months and rates of exclusive breastfeeding at 3 (40%) and 6 (17%) months, particularly for mothers of lower socioeconomic and educational levels (US DHHS, CDC, 2011; Dennis, 2002; Forste & Hoffmann, 2008; Milligan, Pugh, Bronner, Spatz, & Brown, 2000).

In December 2010, new objectives were outlined in HP 2020. The HP 2020 objectives have higher targets than those in HP 2010, including initiation rates at 82%, breastfeeding rates at 6 months at 61% and 12 months at 34%, and exclusive breastfeeding at 3 months at 46% and 6 months at 26% (US DHHS, CDC, 2011). Other new breastfeeding-related objectives added to HP 2020 include increasing the proportion of employers supporting lactation programs, reducing the proportion of breastfed infants receiving formula supplementation in the first 2 days of life, and increasing the number of healthcare facilities supporting live births that provide recommended care for breastfeeding mothers and their infants.

The CDC produces a Breastfeeding Report Card (BRC) each year to summarize breastfeeding trends across states based on HP standards. It includes five outcome indicators and seven process indicators, and the most recent numbers have been measured by objectives set by HP 2020 (US DHHS, CDC, 2011). Outcome indicators track the HP 2020 objectives related to breastfeeding initiation and duration by indicating the percentages of infants who are breastfed in each state. Process indicators measure support elements of breastfeeding-friendly communities, including birth facilities, health professionals, public infrastructure, and child care settings.

Based on 2008 data from the National Immunization Survey, the 2011 BRC showed that Hawai‘i met only one of the five breastfeeding initiation and duration objectives (CDC, 2011). Although Hawai‘i did not meet HP 2020 targets for breastfeeding at 6 and 12 months and exclusivity at 3 and 6 months, the rates surpassed national averages. A summary of the HP 2010 and HP 2020 objectives and a comparison of national and Hawaiian outcome indicators are found in Table 1.1.

**Table 1.1. Summary of HP objectives and outcome indicators.**

<b>HP Objectives</b>	<b>HP 2020 Targets (%)</b>	<b>HP 2010 Targets (%)</b>	<b>US National (%)</b>	<b>Hawai‘i (%)</b>	<b>Number of states meeting HP 2020 objective</b>
Ever breastfed	82	75	75	<b>85</b>	12
Breastfeeding at 6 months	61	50	44	<b>52</b>	5
Breastfeeding at 12 months	34	25	24	<b>31</b>	4
Exclusive breastfeeding at 3 months	46	40	35	<b>42</b>	9
Exclusive breastfeeding at 6 months	26	17	15	<b>21</b>	2
Increasing worksite lactation programs	38	NA	ND	<b>ND</b>	ND
Reducing percent of breastfed infants receiving formula supplementation in first 2 days of life	14	NA	25	<b>24</b>	6
Increasing percent of live births that occur in facilities providing recommended care for lactating mothers and their babies	8	NA	5	<b>9</b>	11

NA = Not applicable; ND = No data

The seven process indicators measure breastfeeding support elements in communities, including birth facility support, professional support, mother-to-mother support, public infrastructure, and availability of child care centers that support breastfeeding (US, DHHS, CDC, 2011). Birth facility support is determined by the CDC National Survey of Maternity Practices in Infant Nutrition and Care (mPINC) score, percent of live births at a designated WHO and UNICEF Baby-Friendly Hospital Initiative (BFHI) birth facility, and percent of breastfed infants receiving formula before 2 days of age. Professional support is determined by the number of International Board

Certified Lactation Consultants (IBCLC) available per 1,000 live births. Mother-to-mother support is evaluated based on the number of La Leche League (LLL) Leaders available per 1,000 live births. Infrastructure is measured by the number of state health department full-time equivalent employees in the US responsible for breastfeeding. Lastly, breastfeeding support in child care facilities is measured by the number of states with child care center regulations that support breastfeeding and are measured with cut-off values of inappropriate, not optimal, less optimal, and optimal. Current results indicate that Hawai‘i meets or exceeds US averages in professional support and birth facility support. However, Hawai‘i lacks state regulations mandating employer lactation support and support in child care settings (US DHHS, CDC, 2011). Presented in Table 1.2 is a comparison of Hawai‘i to the rest of the nation in the BRC process indicators.

**Table 1.2. Summary of HP 2020 objectives and process indicators.**

<b>Process indicator</b>	<b>US National</b>	<b>Hawai‘i</b>
Average mPINC score	65	65
Live births at designated BFHI facilities (%)	5	9
Breastfed infants receiving formula before 2 days of age (%)	25	24
IBCLCs per 1,000 births (#)	3	3
LLL Leaders per 1,000 births (#)	1	1
State health department FTEs dedicated to breastfeeding (Total)	125	1.5
State child care regulation supports lactation	6 optimal	less optimal

### **Impact of Special Supplemental Nutrition Program for Women, Infants, and Children**

In 2010, approximately nine million women and children in the US and US territories participated in WIC, which offers food, nutrition education and referrals to healthcare and other social services to pregnant, postpartum, and breastfeeding women and to infants and children up to age 5 considered nutritionally at risk (US Department of Agriculture, Food and Nutrition Service [USDA, FNS], 2010b). WIC recognizes two types of nutrition risk: 1) a medical-based risk like anemia, underweight, or history of poor pregnancy outcome, and 2) a dietary-based risk like having a poor diet (USDA, FNS, 2011b). Eligibility is based on income; participating women and children must be at

or below 185% of the US Poverty Income Guidelines or be eligible for the Supplemental Nutrition Assistance Program (SNAP), Medicaid, or Temporary Assistance for Needy Families (TANF). For example, in Hawai‘i the maximum qualifying gross income for a family of four would be \$46,916 (USDA, FNS, 2011c).

In a comparison of WIC and non-WIC participants from 1978 to 2003, WIC participants average breastfeeding rates were 24% below non-WIC participants (Ryan & Zhou, 2006). Because breast milk offers infants an optimal start in life, increasing breastfeeding rates across all levels of initiation, duration, and exclusivity in low-income populations is extremely important (Bronner et al., 2001; Ryan & Zhou, 2006). Although Hawai‘i is doing well nationally on breastfeeding indicators, disparities exist in breastfeeding rates among mothers, especially by income and ethnicity. Per findings from the CDC Pregnancy Risk Assessment Monitoring System (PRAMS), pregnant women in Hawai‘i who participated in WIC were two times less likely to breastfeed than non-participants, and Black, Samoan, Native Hawaiian, and Filipino women were less likely than Caucasian women to be breastfeeding at 8 weeks post-birth (CDC, 2010; Hayes, Donohue-Mather, Pager, Eshima, & Fuddy, 2008).

The Center on Budget and Policy Priorities (CBPP) estimated that WIC spent \$850 million in federal funds on infant formula in 2009, accounting for between 57 and 68% of all formula sold in the US (Neuberger, 2010; Oliveira, Frazão, & Smallwood, 2010). Supporting a breastfeeding mother costs WIC approximately 45% less than supporting a formula-feeding mother. Increased breastfeeding rates could provide tremendous cost savings to state WIC programs while enhancing the health of low-income mothers and babies (Bartick & Reinhold, 2010; Weimer, 2001).

WIC has an active breastfeeding promotion and peer-counseling program, and most states offer women incentives for exclusive and partial breastfeeding. For example, women who are exclusively breastfeeding receive an enhanced food package for themselves and their infants. Also, women who continue to breastfeed their infants receive benefits longer than women who stop breastfeeding (USDA, FNS, 2011a). In Hawai‘i, women meeting certain criteria are eligible for a nursing cover and an electric breast pump. Although WIC has an active breastfeeding program, it has been suggested that it has “limited impact because of its limited scale” (Kent, 2006, p. 6). In 2005, only

0.6% of WIC's budget was allocated to increase breastfeeding among its participants (Ryan & Zhou, 2006).

Unfortunately, WIC participants often face physical and social barriers that deter breastfeeding. For example, they are likely to be young, low-income, part of an ethnic minority, employed full-time, required to return to work soon after delivery, live in an unhealthy area or crowded home offering little privacy, and often decide to breastfeed late in pregnancy (Bronner et al., 2001; Forste & Hoffmann, 2008; Milligan et al., 2000; Ryan & Zhou, 2006). It has been suggested that participation in WIC discourages breastfeeding because it offers free formula (Forste & Hoffmann, 2008; Guttman & Zimmerman, 2000; Kent, 2006; Reifsnider, Gill, Villarreal, & Tinkle, 2003; Ryan & Zhou, 2006). Although it has been found that WIC case managers have positive attitudes about breastfeeding and offer encouragement and counseling, there were gaps in knowledge among WIC staff on how to handle breastfeeding problems (Khoury, Hinton, Mitra, Carothers, & Foretich, 2002).

### **Social Support and Interventions**

Enhancing social support for breastfeeding is one of the three main strategies identified by UNICEF and WHO for increasing breastfeeding rates. Support strategies should focus on strengthening family and community resources to facilitate the breastfeeding process. Many of the characteristics associated with lower rates of breastfeeding are non-modifiable, like ethnicity or age. However, educating those in the social support structures of new mothers to encourage initiation and duration of breastfeeding could be very helpful in increasing breastfeeding rates, especially in low-income populations (Forste & Hoffmann, 2008).

The first hours and weeks with her newborn after childbirth is an overwhelming time for a new mother. Although many women intend to breastfeed before the birth of a child, sleep deprivation, the responsibilities of taking care of a newborn and other children, and many other factors can affect breastfeeding initiation, exclusivity, and duration. In a review focusing on breastfeeding duration in low-income women, postpartum fatigue was found to be a significant barrier (Milligan et al., 2000). The women were shown to have higher fatigue levels because they tended to be younger and to have other children to care for, less education, and less support (Forste & Hoffmann,

2008; Milligan et al., 2000). Also, initial experiences in the early postpartum period of breastfeeding are influential in a woman's determination to continue to breastfeed. Many women are unprepared for the learning process involved in establishing breastfeeding successfully, and without the right encouragement and support, many women fall short of the recommended 6 months of exclusive breastfeeding (Li, Fein, Chen, & Grummer-Strawn, 2008).

Informal breastfeeding support, such as partners, family, and friends can be more influential than formal sources, such as physicians and clinic staff (Dennis, 2002; McInnes, & Chambers, 2008). Women have more contact, access, and interaction with their personal social structures than with healthcare providers, and research indicates that the new mom's male partner and mother are the two most influential sources of informal social support (Arora, McJunkin, Wehrer, & Kuhn, 2000; Bar-Yam & Darby, 1997; Clifford & McIntyre, 2008; Dennis, 2002; Freed & Fraley, 1993; Freed, Fraley, & Schanler, 1992; Giugliani, Calaffa, Vogelhut, Witter, and Perman, 1994; Kessler, Gielen, Diener-West, & Paige, 1995; Mahoney & James, 2000; Pollock, Bustamante-Forest, & Giarratano, 2002).

Traditionally, breastfeeding has been supported in Hawai'i, but it is no longer the cultural or societal norm, and breastfeeding decisions and support involve the 'ohana or extended family (Flood & Dodgson, 2010; Morrison, Reza, Cardines, Foutch-Chew, & Severance, 2008; Oneha & Dodgson, 2009). According to Oneha and Dodgson (2009), a supportive breastfeeding environment would mean "involvement of the 'ohana (as defined by the woman) to be present, convey knowledge, encourage, empathize, [and] provide respite, acceptance, and comfort" (p. 93). An unpublished qualitative study found that Native Hawaiian and Filipino women felt that family members, health professionals, and friends offered both helpful and unhelpful advice regardless of feeding choice. Informal support provided by people experienced with breastfeeding and positive family attitudes about breastfeeding most successfully promoted breastfeeding (Novotny, Kieffer, & Goldberg, 1992).

Male partners are repeatedly mentioned in the literature as an important source of support for breastfeeding mothers. In a review regarding fathers and breastfeeding, Bar-Yam and Darby (1997) state that partners were particularly influential in the

“breastfeeding decision, assistance at first feeding, duration of breastfeeding, and risk factors for bottle-feeding” (p. 45). Freed, Jones, and Schanler (1992) found that women were at 456 times greater risk of bottle-feeding if they lacked partner support for breastfeeding.

Several misperceptions a woman’s partner may have about breastfeeding can result in the mother not wanting to breastfeed. The partner may feel left out and jealous of an exclusive relationship between the mother and the baby that began during pregnancy. A partner may worry that breastfeeding will make the breasts unattractive or interfere with sex or the couple’s relationship or that breastfeeding in public is embarrassing or unacceptable (Bar-Yam & Darby, 1997; Fägerskiöld, 2008; Jordan & Wall, 1993; Sharma & Petosa, 1997; Schmidt & Sigman-Grant, 1999; Stremler & Lovera, 2004).

In a qualitative study of new mothers in Hilo, Hawai‘i, Morrison et al. (2008) found that the opinion of the boyfriend or husband was more influential on the breastfeeding decision than the mother’s knowledge of the health benefits of breastfeeding. There was a perception among the mothers that allowing the boyfriends or husbands to bottle-feed gave mothers more free time and gave the fathers bonding time with the infant. Some young women bottle-fed because they felt breastfeeding would detract from their sexuality. A nurse practitioner interviewed during the study believed that many boyfriends were possessive of their girlfriend’s breasts, and the young moms quit breastfeeding because of encouragement to bottle-feed by their moms and boyfriend and not because of their stated excuse of discomfort (Morrison et al., 2008).

The partner or father also may believe that feeding the infant with a bottle is one activity in which he can participate and help the mother, providing him a sense of intimacy with the new baby. As noted by a new dad in a qualitative study of fathers during the immediate postpartum period, “Breastfeeding was what I found most difficult. I didn’t know how to help, I felt useless” (de Montigny & Lacharite, 2004, p. 333). A meta-synthesis revealed that breastfeeding tended to postpone fathers’ ability to develop a fulfilling relationship with the baby until after it was weaned (Goodman, 2005). Using grounded theory methods, Gamble and Morse (1993) discussed the social psychological process described by 14 fathers who reported that they were willing to postpone their

relationship with their infant to make breastfeeding work. Another study of Australian mothers and fathers revealed that mothers felt that dads made a difference and that fathers wanted to be involved but needed more information about breastfeeding (Tohotoa et al., 2009).

The male partner is repeatedly mentioned in literature as an important element in the infant feeding process, but is often excluded in the mom and baby relationship. Traditional focus in research has been on the mom and baby feeding relationship, often referred to as a “breastfeeding dyad.” The term dyad, defined as two units linked as a pair, automatically excludes the male partner from the relationship and breastfeeding process (Lawrence & Lawrence, 2005; Pavill, 2002). Focusing on the dyad alone is not producing the results needed to make breastfeeding the universal and cultural norm. Expanding the “breastfeeding dyad” to a “breastfeeding triad” recognizes the importance of the male partner in supporting and strengthening breastfeeding efforts and the impact that the informal support structure can have in promoting breastfeeding (de Montigny & Lacharite, 2004; Goodman, 2005; Lawrence & Lawrence, 2005; Pavill, 2002; Raj & Plichta, 1998; Sharma & Petosa, 1997).

Although many male partners in the US are becoming more involved in family as compared to previous decades, few models are available to assist them (Goodman, 2005). Two recent qualitative studies found that the male partners would like to be involved but did not have access to, or were not given information about, breastfeeding and were unprepared to be an effective parent (Februhartanty et al., 2006; Tohotoa et al., 2009). Almost all education for infant and child care is developed for the mother and infant (Sharma & Petosa, 1997; Stremmler & Lovera, 2004). In a review of the literature, only nine breastfeeding interventions were found that included the male partner (Mitchell-Box, Chapter 2, 2011). Of those identified, four were randomized controlled trials, four were cohort studies evaluating the impact of different methods of delivering breastfeeding information, and one was a volunteer workplace education program. In six of the interventions, breastfeeding information was delivered to the mother and partner by a healthcare professional, like a pediatrician, midwife or WIC counselor. In two interventions, a trained peer educator delivered the education (e.g., to fathers by fathers),

and one used both strategies of peer and professional educator. All but three of the interventions took place in a healthcare setting.

While results between intervention and control groups were not all significant, in most cases the intervention groups had more positive breastfeeding outcomes. Only two of the intervention studies mentioned incorporating theory into the educational programs, and only one mentioned a theory of health behavior. Suggested by Glanz and Bishop (2010), interventions designed within the framework of an appropriate theory of health behavior change are more effective than those without a theoretical foundation. Sharma and Petosa (1997) assert that the effects of breastfeeding interventions could be enhanced with the Social Cognitive Theory (SCT) framework because it “proposes a triadic, dynamic reciprocity among environmental factors, and behavior” (p. 1311). SCT appears to be a useful theoretical framework of health behavior change to develop partner-targeted breastfeeding interventions because it explains the interaction of personal factors, behaviors, and the environment (Baranowski, Perry, & Parcel, 2002; Glanz & Bishop, 2010; Sharma & Petosa, 1998). All identified interventions include key components of the SCT like targeting knowledge, norms, expectations, and the environment in an effort to change breastfeeding behaviors (Baranowski, Perry, & Parcel, 2002; Mitchell-Box, Chapter 2). This research has the potential to inform the development of interventions that incorporate the partner and address several levels, like partner knowledge, peer support, role modeling by other partners, and environmental support, as guided by SCT, and could be a way to reach HP 2020 goals for breastfeeding.

### **Conceptual Framework**

Hawai‘i has not met most of the HP 2020 objectives and breastfeeding rates in WIC populations are lower than non-WIC populations (Hayes et al., 2008). Focusing on the modifiable characteristics of new mothers, like the support they receive from partners, could help increase breastfeeding rates (Dennis, 2003, 2006; Dennis & Faux, 1999; Stremler & Lovera, 2004; Wolfberg et al., 2004). Creating an effective breastfeeding triad requires more understanding of male partners’ attitudes, knowledge, and feelings about breastfeeding and if their attitudes are predictive of infant feeding decisions and behaviors. Gathering this information from the male partners of WIC clients should help in the development of effective strategies to increase breastfeeding rates in Hawai‘i. A

visual representation of the relationships among the mother, her male partner, and breastfeeding outcomes are shown in Figure 1.1.

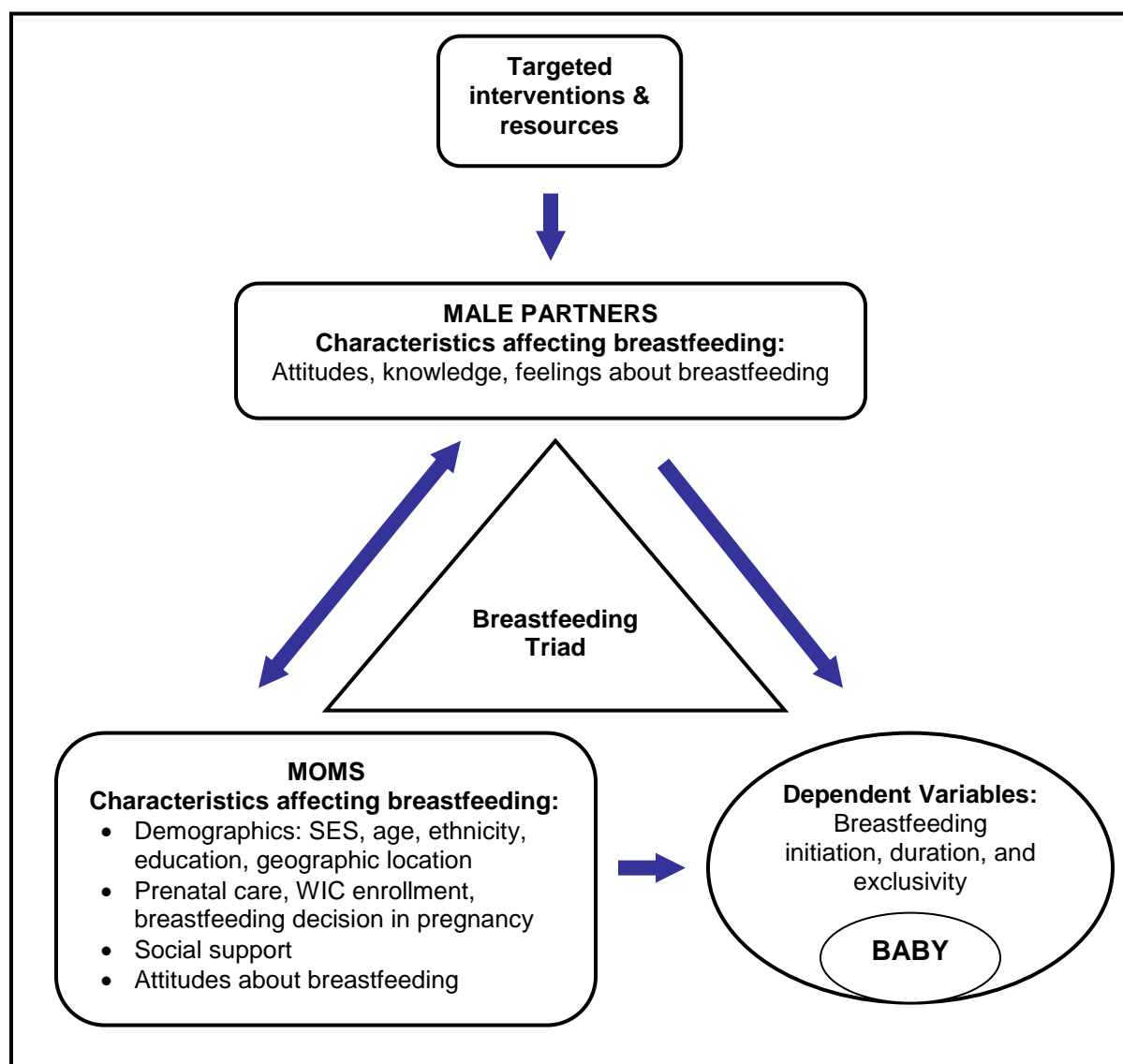


Figure 1.1. The breastfeeding triad and the relationship between moms, male partners, breastfeeding outcomes, and baby.

### Purpose and Summary of Dissertation Research

As discussed, the male partner is an important source of support for the breastfeeding mom, but little research has been conducted with the male partner as the primary research subject. It is important to include male partners in the research base to adequately plan effective and efficient educational programs and develop appropriate

policies to effect the greatest change. The purpose of this three-part, community-based dissertation research is: 1) to conduct a systematic review to consolidate the most up-to-date literature regarding male partner support, identify what has been done, and identify implications for future research and intervention development; 2) to conduct a qualitative study to gather information about breastfeeding attitudes, knowledge, and feelings from male partners of women enrolled in the Hawai‘i WIC population by conducting interviews and analyzing transcripts using grounded theory methods; and 3) to use multivariate analysis to test the association between attitudes of male partners of women enrolled in the Hawai‘i WIC population prior to the baby’s birth (as captured in a breastfeeding measurement scale) and the intentions to breastfeed.

Chapter 2 presents findings from a systematic review that updates and expands a literature review by Bar-Yam and Darby (1997) summarizing the support, assistance, and influence fathers have on breastfeeding. The review methods were based on those described in Liberati et al. (2009) and in the Center for Reviews and Dissemination publication *Systematic Reviews: CRD’s guidance for undertaking reviews in healthcare*. The purpose of this systematic review was to summarize literature published after 1997, to examine the effectiveness of available interventions aimed at strengthening partner support of breastfeeding, and to discuss implications for future intervention development. A search in PubMed, PsycInfo, CINAHL, and the Cochrane Database of Systematic Reviews databases identified nine breastfeeding interventions that included the male partner. The paper is concluded with a recommendation to develop a pilot-able intervention using components of existing interventions within a simplified framework of the SCT.

Chapter 3 reports the findings of a qualitative study that explored attitudes, knowledge, and feelings about breastfeeding of male partners of pregnant women and new mothers in the Hawai‘i WIC population. A convenience sample of 14 men was interviewed, and data were analyzed using grounded theory methods. The qualitative design and grounded theory analysis allowed concepts and variables to emerge from the phenomenon under study without preconceived hypotheses through an in-depth analysis of male partner perceptions of breastfeeding based on their own experiences and views (Charmaz, 2009; Creswell, 2009). The themes that emerged from this research are

integrated with the constructs of the SCT to further inform the development of a pilot-able male partner-focused intervention.

Chapter 4 presents the findings from a quantitative study measuring infant feeding attitudes of mom and partner pairs in the Honolulu WIC population. Quantitative methods were used to determine how mom and partner attitudes are associated with each other and with infant feeding intentions and determine if partner infant-feeding attitudes influence infant-feeding intentions over and above the mom's attitude. A convenience sample of mom and partner pairs in the Hawai'i WIC population were asked to complete a three-part survey that included socio-demographic information, a validated breastfeeding attitude measurement tool (Iowa Infant Feeding Attitude Scale [IIFAS]), and their intended infant feeding method in the hospital and in the first few weeks after the infant's birth. Logistic regression was used to model attitudes and intentions of infant feeding to determine how mom and partner attitudes influence a mom's intention to breastfeed, controlling for demographic characteristics. Intervention implications are also discussed.

### **Researcher's Role**

During the last 3 years, I have had the opportunity to be involved with several breastfeeding communities in O'ahu, Hawai'i. I have participated in events sponsored by the Hawai'i Breastfeeding Coalition (HBC), including the Breastfeeding Visioning Retreat and training for the Business Case for Breastfeeding. During my coursework, I conducted an asset-mapping project for the HBC and had the pleasure of getting to know the HBC executive committee, whose members have many decades of breastfeeding experience in Hawai'i.

I have also taken courses to advance my knowledge of breastfeeding physiology, management, and counseling. Courses include an online Human Lactation course through Wichita State University School of Nursing, the 18-hour Kaiser Breastfeeding Management Course, and a 40-hour Lactation Counselor Certificate Training Program (CLC). Both the 18 and 40-hour courses satisfy training that UNICEF and WHO require of all healthcare practitioners working in certified BFHI facilities. I successfully completed the 100-question exam at the end of the CLC course and am a designated Certified Lactation Counselor.

I participated in the 2009-2010 WIC Breastfeeding Peer Counseling Program (BPCP). The BPCP consisted of a 5-week, 6-hours-per-week didactic, and a 15-week, 12-hours-per-week practicum in the Honolulu WIC clinic. During the practicum, I worked with WIC nutritionists and clients both prenatally and postpartum. After completion of the didactic and practicum training, my roles and responsibilities as a WIC BPC were to support and encourage WIC moms and their babies by being available in the clinics, by phone, and by email for questions and concerns, to visit moms at home or in the hospital for follow-up, to make phone calls and write emails to clients referred by staff, and to mentor WIC staff in breastfeeding counseling and information. The majority of this research was conducted within the Honolulu WIC population and, because I was in the clinic 20-30 hours every week as a breastfeeding peer counselor, I was able to ask clients if they wanted to participate in the research. Becoming a WIC peer counselor put me in an ideal situation for accessing and recruiting participants and truly understanding the community I wanted to work with and learn from.

I also discussed this dissertation proposal with Carolyn Donahue-Mather, the Hawai'i State Breastfeeding Coordinator for WIC and an Internationally Board Certified Lactation Consultant. She was excited about my research and saw the potential value to Hawai'i WIC programs and policies and to breastfeeding literature in general.

In addition to my role as a researcher, I am a mom who believes breastfeeding is one of the most important decisions that can be made for an infant. As a full-time student with a husband with a heavy travel schedule and no family support in Hawai'i, I understand and can empathize with how the decision to breastfeed and the actuality of breastfeeding long-term can seem daunting given the stresses of motherhood.

## **CHAPTER 2. INCREASING BREASTFEEDING THROUGH MALE PARTNER-FOCUSED INTERVENTIONS: A SYSTEMATIC REVIEW**

### **Abstract**

Breastfeeding behaviors are affected by social support, and research suggests that informal sources of support, particularly the father or partner, can be more influential than formal support from healthcare providers. The purpose of this systematic review is to specifically examine the influence of partner support on low-income women's decision to breastfeed and the effectiveness of available interventions to strengthen partner support of breastfeeding. Articles included in this review are the result of searches through PubMed, PsycInfo, CINAHL, and the Cochrane Database of Systematic Reviews. Based on key words, 776 articles were identified. Of these, 79 met the inclusion criteria, and the full text article was reviewed. Of these, nine were review articles and 28 reported on quantitative studies, 25 on qualitative studies, five on mixed method studies, and 12 on nine unique interventions that included expectant fathers. The interventions studies showed that partner-focused programs have promise in improving breastfeeding practices, especially if structured using the Social Cognitive Theory and with well conceived recruitment and retention strategies. Given that the interventions focusing only on mothers have not resulted in increasing breastfeeding rates and the consistent research findings of the importance of the father in the breastfeeding decision-making process, future development of interventions should include the partners.

### **Keywords**

Breast feeding, social support, health education, spouse, domestic partners, interpersonal relations, evidence-based practice

## **Introduction**

Breastfeeding is considered the best infant feeding method, yet breastfeeding initiation and duration rates in the United States (US) are low despite recommendations by medical and public health professionals. Although breastfeeding initiation rates in the US have increased in the past 40 years, from a low of 22% in 1972 to the current rate of 75% (US Department of Health and Human Services [US DHHS, CDC], 2011; Wright, 2001), most states fall short of national objectives for initiation (82%) and 6-month duration (61%) set by the US DHHS Healthy People (HP) 2020, particularly for mothers of lower socioeconomic and educational levels (US DHHS, CDC 2011; Dennis, 2002; Forste & Hoffmann, 2008; Milligan, Pugh, Bronner, Spatz, & Brown, 2000).

The literature suggests that male partner attitudes and support are important in women's breastfeeding practices, but male partners are often excluded from the mom and baby feeding relationship (Bar-Yam & Darby, 1997; Clifford & McIntyre, 2008; Dennis, 2002). Traditionally, the mom and baby feeding relationship is referred to as a "breastfeeding dyad." The term dyad, defined as two units linked as a pair, automatically excludes the male partner from the relationship and breastfeeding process, even though when male partners are not supportive of breastfeeding, moms are more likely to choose bottle-feeding (Clifford & McIntyre, 2008; Lawrence & Lawrence, 2005). Focusing on the dyad alone is not producing the results needed to make breastfeeding the universal norm. Expanding the "breastfeeding dyad" to a "breastfeeding triad" recognizes the importance of the male partner in supporting and strengthening breastfeeding efforts and the impact that the informal support structure can have in promoting breastfeeding (de Montigny & Lacharite, 2004; Goodman, 2005; Lawrence & Lawrence, 2005; Pavill, 2009; Raj & Plichta, 1998; Sharma & Petosa, 1997).

Breastfeeding policy and program development requires updates from literature to respond to current trends. A review by Bar-Yam and Darby (1997) summarizing literature about fathers and breastfeeding is considered one of the most complete resources. Using published English-language literature written between 1980 and 1995, the Bar-Yam and Darby review included articles from the US, Canada, and Great Britain about the influence the father has on the decision to breastfeed and to continue breastfeeding, whether the father is supportive, and the assistance fathers may provide

during breastfeeding. The authors concluded that “fathers influence four aspects in particular: the breastfeeding decision, assistance at first feeding, duration of breastfeeding, and risk factors for bottle-feeding” (Bar-Yam & Darby, 1997, p. 45).

Since this 1997 review, much has been written about the importance of the male partner as a primary element in a mom’s support structure. An updated literature review is needed in the field. Educating the social support structures of new mothers to encourage breastfeeding both initially and long-term could be helpful in reaching national breastfeeding goals, especially in low-income populations (Forste & Hoffmann, 2008), and interventions targeting the male partners have been implemented that show promising results in a variety of settings and populations. Thus, the purpose of this review is to update and expand Bar-Yam and Darby’s (1997) review by examining the influence of the male partner on women’s decision to breastfeed and identifying gaps in research, with a particular focus on reviewing existing partner-focused interventions and making recommendations on how the male partner could be further engaged to support the initiation and continuation of breastfeeding.

## **Methods**

### ***Eligibility Criteria/Information Sources***

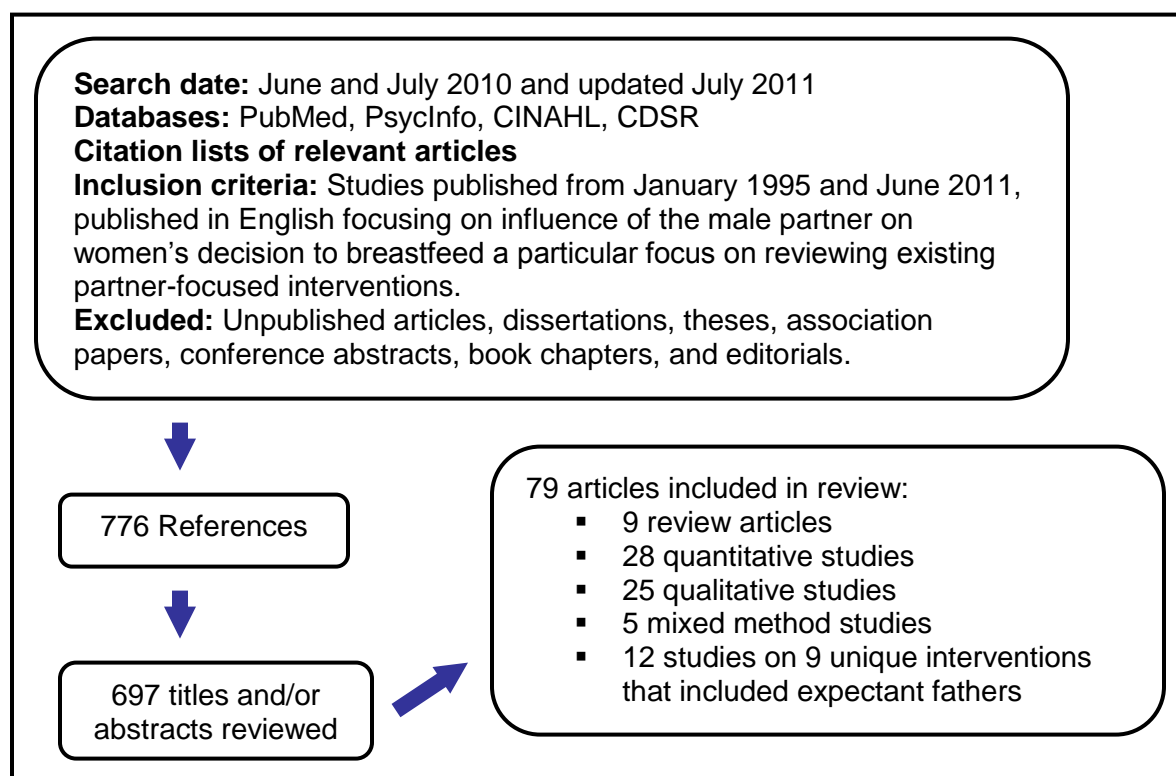
Published studies were identified through a search of PubMed, PsycInfo, CINAHL, and the Cochrane Database of Systematic Reviews (CDSR). Because the Bar-Yam and Darby (1997) review included literature published between 1980 and 1995, this review included articles published between January 1995 and June 2011 and written in English. No restrictions were placed on age of participants or country of research. Breastfeeding educational programs or interventions included in the review were limited to studies focusing on the male partner in relation to breastfeeding.

Search terms used were “breastfeeding,” “father,” “partner,” “low-income,” “WIC” (US Department of Agriculture Special Supplemental Nutrition Program for Women, Infants, and Children), “intervention,” and “education,” alone and in various combinations. Search terms in PubMed included the Medical Subject Headings (MeSH) “breast feeding,” “spouse,” “interpersonal relations,” “social support,” “poverty,” “intervention studies,” “evidence-based practice,” “education,” and “health education.”

Related articles and reference lists of relevant articles were scanned for possible inclusion.

### Study Selection

Included articles were from peer-reviewed scientific journals that reported on review articles and research studies focusing on the male partner as a primary element in a woman's social support network and his relationship to breastfeeding initiation and duration with a focus on interventions specifically developed for the male partner. Exclusions included unpublished articles, dissertations, theses, association papers, conference abstracts, book chapters, and editorials. Also excluded were articles that acknowledged the importance of the male partner in the discussion, in commentary, or as a general recommendation. Of the 776 articles identified, 697 were rejected after the titles or abstracts suggested that they were not relevant to this review, resulting in 79 articles that met the inclusion criteria (Figure 2.1).



**Figure 2.1. Systematic review methods, study selection, and organization.**

Of the 79 included articles, nine were review articles, 28 reported results of quantitative data, 25 reported results of qualitative data, five reported on research that was mixed

design, and 12 reported on nine unique interventions to increase breastfeeding rates (Table 2.1).

**Table 2.1. Studies included in systematic review by type.**

<p><b>Review Articles</b></p> <p>Bar-Yam, N. B., &amp; Darby, L. (1997). Fathers and breastfeeding: a review of the literature. <i>Journal of Human Lactation</i>, 13(1), 45-50.</p> <p>Clifford, J., &amp; McIntyre, E. (2008). Who supports breastfeeding? <i>Breastfeeding Review</i>, 16(2), 9-19.</p> <p>Dennis, C. L. (2002). Breastfeeding initiation and duration: A 1990-2000 literature review. <i>Journal of Obstetric, Gynecologic, and Neonatal Nursing</i>, 31(1), 12-32.</p> <p>Goodman, J. H. (2005). Becoming an involved father of an infant. <i>Journal of Obstetric, Gynecologic, and Neonatal Nursing</i>, 34(2), 190-200.</p> <p>Ingram, J. (2008). The father factor: men can make the difference. <i>Practicing Midwife</i>, 11(11), 15-16.</p> <p>Raj, V. K., &amp; Plichta, S. B. (1998). The role of social support in breastfeeding promotion: a literature review. <i>Journal of Human Lactation</i>, 14(1), 41-45.</p> <p>Scott, J. A., &amp; Binns, C. W. (1999). Factors associated with the initiation and duration of breastfeeding: a review of the literature. <i>Breastfeeding Review</i>, 7(1), 5-16.</p> <p>Sharma, M., &amp; Petosa, R. (1997). Impact of expectant fathers in breast-feeding decisions. <i>Journal of the American Dietetic Association</i>, 97(11), 1311-1313.</p> <p>Thulier, D., &amp; Mercer, J. (2009). Variables associated with breastfeeding duration. <i>Journal of Obstetric, Gynecologic, and Neonatal Nursing</i>, 38(3), 259-268.</p>
<p><b>Quantitative Studies</b></p> <p>Arora, S., McJunkin, C., Wehrer, J., &amp; Kuhn, P. (2000). Major factors influencing breastfeeding rates: Mother's perception of father's attitude and milk supply. <i>Pediatrics</i>, 106(5), E67.</p> <p>Binns, C., Gilchrist, D., Gracey, M., Zhang, M., Scott, J., &amp; Lee, A. (2004). Factors associated with the initiation of breast-feeding by Aboriginal mothers in Perth. <i>Public Health Nutrition</i>, 7(7), 857-861.</p> <p>Chang, J. H., &amp; Chan, W. T. (2003). Analysis of factors associated with initiation and duration of breast-feeding: a study in Taitung Taiwan. <i>Acta Paediatr Taiwan</i>, 44(1), 29-34.</p> <p>Chen, C. H., &amp; Chi, C. S. (2003). Maternal intention and actual behavior in infant feeding at one month postpartum. <i>Acta Paediatr Taiwan</i>, 44(3), 140-144.</p> <p>Chen, Y. C., Chie, W. C., Chang, P. J., Chuang, C. H., Lin, Y. H., Lin, S. J., et al. (2011). Is infant feeding pattern associated with father's quality of life? <i>American Journal of Men's Health</i>, 4(4), 315-322.</p> <p>Ekstrom, A., Widstrom, A. M., &amp; Nissen, E. (2003). Breastfeeding support from partners and grandmothers: perceptions of Swedish women. <i>Birth: Issues in Perinatal Care</i>, 30(4), 261-266.</p> <p>Flacking, R., Dykes, F., &amp; Ewald, U. (2010). The influence of fathers' socioeconomic status and paternity leave on breastfeeding duration: a population-based cohort study. <i>Scandinavian Journal of Public Health</i>, 38(4), 337-343.</p> <p>Glenn, L. L., &amp; Quillin, S. I. (2007). Opposing effects of maternal and paternal socioeconomic status on neonatal feeding method, place of sleep, and maternal sleep time. <i>Journal of Perinatal and Neonatal Nursing</i>, 21(2), 165-172.</p> <p>Goulet, C., Lampron, A., Marcil, I., &amp; Ross, L. (2003). Attitudes and subjective norms of male and female adolescents toward breastfeeding. <i>Journal of Human Lactation</i>, 19(4), 402-410.</p> <p>Humphreys, A. S., Thompson, N. J., &amp; Miner, K. R. (1998). Intention to breastfeed in low-</p>

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### **Interventions**

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## Results

### *Review Articles*

As noted above, the Bar-Yam and Darby (1997) review has been the definitive review of literature regarding fathers and how their support can contribute to successful breastfeeding. Several other reviews have attempted to fill the gaps in the years since the original review. Of the nine review articles identified, Goodman's (2005) is a meta-synthesis of qualitative literature focusing on fatherhood in the early postnatal period, which included a discussion about the involvement of fathers and breastfeeding. The author found that men had unrealistic expectations about fatherhood and that anticipatory guidance about the early stages of breastfeeding should be directed to both parents.

The remaining review articles include discussion about male partner support within the greater context of both social and professional support. For example, Clifford and McIntyre (2008) presented a review of qualitative and quantitative literature about support from all key people in a breastfeeding mom's life, including fathers, friends, family, health professionals, peer counselors, employers, and immediate family. A significant conclusion of the review was that the father can be the most influential person in supporting breastfeeding. Another review by Dennis (2002) included literature about effective strategies in promoting positive breastfeeding behaviors, concluding that support from informal sources and specifically the mom's partner, is "primary...in the initiation of breastfeeding" (p.18). In Thulier and Mercer's (2009) review of the variables that influence breastfeeding duration, the authors stated that support from significant others is important and concluded that the entire family, not just the mom, be supported during the prenatal, antenatal, and postnatal periods.

### *Quantitative Research Studies*

Of the 28 articles reporting findings from quantitative studies, 23 collected data from moms, and results consistently indicated that the male partner is important in initiation and duration of breastfeeding. Data collected from moms indicate that fathers' support and attitude toward breastfeeding impact initiation and duration of breastfeeding. For example, in a study measuring breastfeeding self-efficacy at 2 days and 4 weeks postpartum in Canada, Kingston, Dennis, and Sword (2007) discovered that the women who had received praise from their partners had higher levels of confidence in breastfeeding than moms who received no praise. In a study of Mandarin-speaking Australian mothers, Li, Zhang, Scott, and Binns (2004) found statistically significant higher odds of initiating breastfeeding in women whose partner preferred breastfeeding.

Twelve of 28 quantitative studies reported on data collected from fathers; four of these reported on population-based data pertaining to specific communities or countries with a variety of demographic characteristics. For example, Rempel and Rempel (2004) correlated the father's beliefs about breastfeeding prenatally at six points in the first postpartum year with the mom's breastfeeding reasons, intentions, and behavior in a sample of Canadian women and their partners. The father's beliefs about breastfeeding predicted mom's breastfeeding intentions and behavior over mom's breastfeeding reasons and intentions.

Research has determined that mom's socioeconomic characteristics are important influences in the duration of infant feeding, and analyses of population-based data suggests that the father's socioeconomic status is also an important influence in infant feeding. Flacking, Dykes, and Ewald (2010) reported that, in a Swedish sample of 51,671, fathers with lower levels of education or income or who did not take paternity leave during the first year were significantly less likely to have infants who were breastfeeding at 2, 4, 6, 9, and 12 months of age. In a study using the responses of 2,145 men in a Texas sample of the 2007 Behavioral Risk Factor Surveillance System (BRFSS), Vaaler et al. (2011) found that race/ethnicity, education, and socioeconomic status contributed to attitudes toward infant feeding in social environments and the workplace, public images of breastfeeding, and chosen infant feeding method. Consistent with results from the Swedish sample, fathers with less education and lower

socioeconomic status had less positive attitudes towards breastfeeding. In a sub-sample of men with children, fathers who believed that breastfeeding did not place social limitations on the mom, had more positive attitudes towards accommodating breastfeeding in the workplace, and perceived positive images in the media were more likely to have an infant who was breastfed.

Parental closeness or connectedness also has been identified as an influence on infant feeding outcomes. Two studies--a cohort study using British population-based data and an ethnographic study examining data from 58 societies worldwide--determined that couples that were married, cohabitating, or had a close relationship at the time of the infant's birth were more likely to initiate and continue breastfeeding longer than women without a supportive partner (Kiernan & Pickett, 2006; Quinlan & Quinlan, 2008).

### ***Qualitative Research Studies***

Although Jordan and Wall (1990) and Gamble and Morse (1992) published their qualitative analyses of fathers' perceptions and involvement in the breastfeeding process in the early 1990s, these two studies are still referenced often. But since 1995, 25 qualitative studies have been published regarding the male partner and breastfeeding. As with the quantitative research, the majority of these qualitative studies were conducted with the mom as research subject. The qualitative literature in recent years also has highlighted how the father would like to take a more active role in the infant feeding process, and there has been an increasing interest in the father's perceptions of the process.

Men have become increasingly more involved in the household and want to take a more active role in their infants' lives (Fägerskiöld, 2008; Februhartanty et al., 2006; Goodman, 2005). While fathers seem to be more positive in their perceptions of breastfeeding, much of recent literature is consistent with the findings from the early 1990s. Men are supportive of breastfeeding and believe it is healthy and natural and the best nutrition for their infant. But they also do not feel they are involved in the infant feeding decision, find balancing infant feeding with family life difficult, feel "outside" the mom and baby relationship, rarely acknowledge the health benefits for the breastfeeding mom, do not have the knowledge or skills to support breastfeeding, and are uncomfortable with breastfeeding in public (Avery & Magnus, 2011; Henderson et al.,

2011; Schmidt & Sigman-Grant, 2000; Sherriff, Hall, & Pickin, 2009; Sherriff & Hall, 2011).

### ***Mixed Methods Research***

Several studies combined qualitative and quantitative data to describe the male partner's importance in the breastfeeding process. For example, in a sub-sample of a larger study, Kessler, Gielen, Diener-West, and Paige (1995) interviewed 133 pregnant women and their significant others (70% were their male partner or baby's father). Results determined that women who were married or had a significant other that preferred breastfeeding best predicted the women who intended to breastfeed. Gorman, Byrd, and VanDerslice (1995) collected survey data from 270 households and conducted three focus groups with Hispanic women and men near El Paso, Texas. They discovered that the men felt they did not need breastfeeding education because men cannot breastfeed; the women felt men would not want to participate. Also, breastfeeding opinions were contradictory among the women and men; men stated they preferred breastfeeding, but more than half the women thought that their partners did not like breastfeeding. When asked about the decision to breastfeed, men felt they had an influence, but the women denied any influence. In a sample of 100 men of diverse racial and ethnic backgrounds in New Orleans, Pollack, Bustamante-Forest, and Giarratano (2002) found that most men wanted their babies to be breastfed. However, the men lacked the technical knowledge about the specific health benefits of breast milk.

### ***Breastfeeding Interventions Including Male Partners***

Many interventions target the mother through prenatal appointments, WIC participation, childbirth classes, etc. In these interventions, the mother is most likely to interact with a health professional, and the interventions do not often have a positive impact on breastfeeding outcomes. In a review identifying the influences of fathers' decision to breastfeeding and recommendations for practice, Sharma and Petosa (1997) assert "the disappointing outcomes may, in part, be a result of the assumption that breastfeeding decisions are made primarily by the pregnant woman" (p. 1311).

Despite the importance of male partner social support in breastfeeding and the recognition that he has an important role in initiating and continuing breastfeeding, there are few examples of interventions that incorporate him into the infant feeding education

process. Nine educational programs or strategies were identified that involved the partner in supporting the new mother in breastfeeding, and most had a positive impact on breastfeeding behaviors. These studies, summarized in Table 2.2, originated in the US (4), United Kingdom (2), Australia (1), Brazil (1), and Italy (1) and included participants with a range of socio-demographic characteristics. Of those identified, four were randomized controlled trials, four were cohort studies evaluating the impact of different methods of delivering breastfeeding information, and one was a volunteer workplace education program. Breastfeeding information was delivered to the mother and partner by a healthcare professional (pediatrician, midwife, or WIC counselor) in six of the interventions. In two interventions, a trained peer educator delivered the educational program (e.g., to fathers by fathers), one used both strategies of peer and professional educators, and all but three took place in a healthcare setting. In most cases, the members of the intervention groups had more positive breastfeeding outcomes than members of the control groups, although not all these differences were statistically significant.

**Table 2.2. Characteristics of intervention studies.**

<b>Author &amp; Year Location</b>	<b>Study Design/ Setting</b>	<b>Participants</b>	<b>Intervention Characteristics</b>	<b>Results/Conclusions</b>	<b>Limitations/Biases</b>
Cohen et al., 2002 USA	Volunteer workplace education program.	128 of 331 male employees and their partners at the Los Angeles Department of Water and Power, diverse race/ethnicities (53% Caucasian), variety of job assignments (50% field/technical workers), mean age 36.	“The Fathering Program” expanded existing female employee lactation program. Offered employees and their partners a choice of one 1-hour individual class or two 45-minute group classes, breast pumps, and access to lactation consultants by phone or in person. Individual classes included a breastfeeding book, information about a breast pump, storing and handling expressed milk, and a handout titled “Breast Engorgement, Milk Storage and Handling and Sore Nipples.” Group classes included the male employee and their partner and were organized by subject and included information about concerns, issues, and joys of breastfeeding, and emphasized the father’s important role of support.	Average length of breastfeeding for partners of all fathers participating in program was 8 months, 69% of women still breastfeeding at 6 months. Highlighted cost savings to employer (no specific data).	None mentioned.

**Table 2.2. (Continued) Characteristics of intervention studies.**

Author & Year Location	Study Design/ Setting	Participants	Intervention Characteristics	Results/Conclusions	Limitations/Biases
Ingram & Johnson, 2004 UK	<p>Part 1: Interviews and focus groups to explore knowledge and attitudes of infant feeding with fathers and grandmothers.</p> <p>Part 2: Pre-post testing to explore feasibility of intervention. Tests administered to moms intending to breastfeed with a chosen support partner.</p> <p>Community health center and family homes in predominately white, low-income area with high rates of unemployment, low levels of education, and low levels of breastfeeding prevalence.</p>	<p>Part 1: Two focus groups of grandmothers: the first group with breastfed grandchildren (7), and the second group with bottle-fed grandchildren (3). Individual interviews with five fathers in their homes.</p> <p>Part 2: 29 intervention families. Selection criteria included prenatal intentions to breastfeed. 20 mothers chose their partner to participate in the intervention, and 9 chose their own mother. Mothers aged 18-39, fathers 23-60, and grandmothers had 2-7 children and 0-5 grandchildren.</p>	<p>30-minute prenatal session delivered by research midwife in mother's home at 36 weeks gestation. Education based on leaflet written for partners and grandmothers. Leaflet differed by picture on front and included information about health benefits, positioning, how to manage feedings, how families can support breastfeeding, and other tips. Demonstrations also included in discussion. Thirty-minute postnatal follow-up interviews when baby was 8 weeks old and discussions included changes in feedings since birth, difficulties, sources of support, changes in feeding advice, and feedback about prenatal education session and educational leaflet.</p>	<p>All participants found education session useful with enough information and appreciated the demonstration of positioning. Fathers and grandmothers felt they knew more and could be more supportive. At 8 weeks, 76% of participants feeding formula.</p>	<p>Acknowledged difficulty in recruiting fathers and grandmothers to attend focus groups.</p> <p>Research midwife employed part-time which may have decreased ability for recruitment.</p>

**Table 2.2. (Continued) Characteristics of intervention studies.**

<b>Author &amp; Year Location</b>	<b>Study Design/ Setting</b>	<b>Participants</b>	<b>Intervention Characteristics</b>	<b>Results/Conclusions</b>	<b>Limitations/Biases</b>
Ingram & Johnson, 2009 UK	Maternity care assistants (MCAs) trained to deliver breastfeeding education information to family members of pregnant women in predominantly Caucasian, government-funded Sure Start communities with low breastfeeding prevalence.	11 first-time mothers who intended to breastfeed and their chosen support partner, aged 17-34 years. All chose father as partner, aged 21-39. Two unemployed and the others had a range of occupations.	MCAs delivered intervention in participants' homes at 36 weeks gestation. 30-40 minute discussions based on breastfeeding leaflet designed for partners or grandmothers and included demonstration of breastfeeding positioning and attachment using a doll. Topics covered in the leaflet were breastfeeding health benefits, feeding management, recognizing good positioning and attachment, and ways fathers can support breastfeeding with practical tips. MCAs encouraged moms to try using the doll for positioning. Post-natal interviews with participants and their partners and the MCAs.	Participating mothers and fathers were positive about antenatal intervention and MCA involvement. This was only breastfeeding information for some fathers and they appreciated opportunity to ask questions in private setting and leaflet just for them. All mothers initiated breastfeeding, 3 stopped in first 2 weeks, 1 at 6 weeks, and 6 still breastfeeding at 8 weeks.	Participating MCAs enjoyed the education sessions but experienced problems recruiting women for study.  Small numbers of MCAs and women involved in intervention.  Demographic characteristics more mixed than expected so results may not be representative of population.

**Table 2.2. (Continued) Characteristics of intervention studies.**

<b>Author &amp; Year Location</b>	<b>Study Design/ Setting</b>	<b>Participants</b>	<b>Intervention Characteristics</b>	<b>Results/Conclusions</b>	<b>Limitations/Biases</b>
Pisacane et al., 2005 Italy	Controlled trial in University hospital in Naples.	All mother and father pairs who delivered healthy, term, normal birth weight babies from 10/1/2002-1/31/2003 enrolled trial. Unmarried women, mothers who decided to bottle feed and parents with children in ICU excluded. Total of 280 couples; 140 in intervention and 140 as controls. No differences in demographic characteristics between two groups.	All mothers administered questionnaire and given a leaflet about the benefits and management of breastfeeding. Fathers were allocated to control or intervention group. Fathers of intervention group were interviewed and offered 40-minute education session by WHO-UNICEF 40-hour trained midwife about infant feeding, breastfeeding difficulties, concerns the father may have, and father's vital role in breastfeeding. Fathers in control group offered 40-minute education session about child care. Both education sessions followed up with subject appropriate leaflet. Mothers interviewed at 6 and 12 months after birth to assess infant feeding, difficulties, and support from family members and health professionals.	Breastfeeding prevalence at 6 months significantly higher in intervention group (25% vs. 15%), but no differences in complimentary breastfeeding and prevalence at 12 months. Perceived milk insufficiency higher among women in control group (27% vs. 8.6%) and giving up breastfeeding because of problems (18% vs. 4%). Significantly more women received support and help from partner in intervention group than control group (91% vs. 34%).	Limited number of participants, single-hospital setting, and sequential allocation of the participants.

**Table 2.2. (Continued) Characteristics of intervention studies.**

Author & Year Location	Study Design/ Setting	Participants	Intervention Characteristics	Results/Conclusions	Limitations/Biases
Sciacca & Dube et al., 1995; Sciacca & Phipps et al., 1995 USA	Controlled trial in two Arizona WIC clinics.	68 first time expectant mothers and their chosen partner (majority was baby's father), 26 pairs in intervention group and 29 completed the study, 65% Caucasian, 50% with less than 12 years formal education, 58% older than 21. No differences between intervention and control groups.	<p>“The Caring Connection” included women and participating partners asked about breastfeeding intent, given a breastfeeding knowledge and attitude questionnaire and randomly assigned to control and intervention groups. Intervention group received special incentives prenatally and postpartum for completion of program components. First component was a 2-hour breastfeeding class covering topics to address misconceptions of breastfeeding and provide knowledge and motivation to breastfeed. The women received a gift bag and a breast pump and participants completed a posttest. The second component was a 5-session preparation class. The couples that attended 3 or more sessions received incentives. Women in the intervention group were also automatically enrolled in the peer-counseling program and received incentives for contacting the peer counselor within 2 days after birth. Women who reported breastfeeding for any time at 6 weeks and 3 months postpartum received a gift. Control group women received WIC's usual breastfeeding education including access to the childbirth education series and peer counseling program, 15 minute breastfeeding classes during WIC appointments, WIC breastfeeding literature available in the clinic lobbies and by WIC nutritionists.</p>	Breastfeeding knowledge and positive breastfeeding attitudes increased after intervention in mothers and fathers. Study participants were divided into 4 groups by prenatal feeding intentions: exclusively breastfeed, mixed feeding, exclusively formula feed, and not sure. In all groups, the intervention group was more likely to significantly influence the women to breastfeed more and formula feed less. Women breastfeeding exclusively at 2 weeks, 6 weeks and 3 months postpartum significantly higher than control group. At 2 weeks and 3 months postpartum, there were significant differences regarding perceived support by the father. Incentives were rated low in terms of perceived influence to breastfeed.	None mentioned.

**Table 2.2. (Continued) Characteristics of intervention studies.**

<b>Author &amp; Year Location</b>	<b>Study Design/ Setting</b>	<b>Participants</b>	<b>Intervention Characteristics</b>	<b>Results/Conclusions</b>	<b>Limitations/Biases</b>
Sheehan, 1999 Australia	Quasi-experimental cohort study in large private hospital evaluating teaching strategies.	154 first time expectant mothers; 86 in control group and 68 in experimental group. Mean age of 30.4 years, married or living with partner and higher level of education than general population.	Women and their partners attended 1-hour breastfeeding education classes. Content for control and intervention classes the same but offered with different teaching strategies. Control class taught by midwife childbirth educator and utilized models and overheads with some demonstration with dolls for positioning. The intervention class was led by local Nursing Mothers Association Australia (NMAA) representatives and their male partners and included a breastfeeding woman to demonstrate to the group. NMAA representatives taught for 45 minutes then split groups by gender for further discussion. Women led women and men led men. Data collected after delivery in the hospital, by phone every 4 weeks up to 25 weeks, or until breastfeeding ceased. Mothers were also sent the Maternal Breastfeeding Evaluation Scale evaluating positive and negative aspects important to successful breastfeeding.	No differences found between groups in relation to exclusive breastfeeding ( $p = 0.34$ ), breastfeeding duration rates ( $p = 0.60$ ), or perceived levels of success ( $p = 0.63$ ). Also, no differences between groups in relation to fully breastfeeding, partially breastfeeding, and ceased breastfeeding, at discharge from hospital ( $p = 0.22$ ), and at 2 ( $p = 0.70$ ), 3 ( $p = 0.23$ ), and 6 ( $p = 0.91$ ) months postpartum.	Author acknowledges participants were extremely homogeneous and upper-middle class, limiting generalizability.  Experimental group had a variety of presenters and 1-hour did not allow sufficient time to form relationships with peer supporters.

**Table 2.2. (Continued) Characteristics of intervention studies.**

Author & Year Location	Study Design/ Setting	Participants	Intervention Characteristics	Results/Conclusions	Limitations/Biases
Stremler & Lovera, 2004; Lovera et al., 2010 USA	Father-to-father peer-support cohort study in two Texas WIC clinics.	9 fathers of breastfeeding WIC participants trained as peer dads. 141 couples participated in both peer counseling and peer dad counseling and 141 mothers participated in peer counseling only. All counselors and participants were Hispanic.	WIC Peer Dad Program where fathers were trained and employed to counsel other fathers one-on-one in clinic waiting rooms, by phone, or by appointment, conduct class discussions in breastfeeding classes, childbirth education classes, hospital classes, and classes at public health clinics, and other speaking opportunities at local events. Peer dads encouraged fathers to attend classes and appointments with the mothers. Fathers who made contact with peer dads were surveyed to determine perceived value of contact.	Couples participating in both peer counseling programs breastfed for 6 months or longer than those in the peer counseling program only (63.4% vs. 54.6%). Results were not significant. Unanticipated benefit of program was that more dads attended clinic visits regardless of intervention category.	<p>Authors suggest differences in BMI levels between intervention and control group could have affected results.</p> <p>Many families did not return to appointments and were withdrawn from WIC resulting in lower response rates and lower statistical power.</p> <p>Unable to conduct bias analysis to determine if demographic characteristics differed between groups.</p> <p>Information collected retrospectively.</p> <p>Recruiting peer dads difficult.</p>

**Table 2.2. (Continued) Characteristics of intervention studies.**

Author & Year Location	Study Design/ Setting	Participants	Intervention Characteristics	Results/Conclusions	Limitations/Biases
Susin et al., 1999; Susin & Giugliani, 2008 Brazil	Randomized controlled trial in university hospital.	586 low-income mothers and fathers of normal newborns divided into 3 groups: control group (208), intervention with mothers only (197), and intervention with both mothers and fathers (196).	Socio-demographic data collected from all groups prior to intervention and a structured questionnaire to assess knowledge of breastfeeding. Mothers and fathers in intervention groups watched an 18-minute video including information about WHO recommendations, prevention and management of common breastfeeding problems, and the importance of the father's participation by helping with household tasks and childcare. Included images of fathers completing tasks. Video followed by an open discussion and informational handout. All families visited at end of infants' 1 <sup>st</sup> , 2 <sup>nd</sup> , 4 <sup>th</sup> , and 6 <sup>th</sup> months, or until breastfeeding was interrupted, and mothers completed questionnaire about babies' feeding habits. At the end of the first month, participants from all groups completed the same breastfeeding knowledge questionnaire as completed post-delivery.	Knowledge of breastfeeding increased and was statistically significant in both intervention groups. Education level greater than 8 years was associated with higher breastfeeding knowledge. Cox regression indicated that intervention with mothers only significantly reduced risk of cessation of breastfeeding. No statistical difference when both mothers and fathers participated. Frequency of exclusive breastfeeding higher in mothers and fathers intervention group (16.5% at 4 months vs. 11.1% in the mothers' only intervention group and 5.7% in the control group). Surprising finding was decrease in breastfeeding rates in first 6 months when father included in intervention.	Authors suggest content of video may have been inappropriate for Brazilian males, given it was based on fatherhood model of Western societies.  Single-hospital setting because intervention results were different in fathers with different social backgrounds.  Baseline differences in groups.

**Table 2.2. (Continued) Characteristics of intervention studies.**

<b>Author &amp; Year Location</b>	<b>Study Design/ Setting</b>	<b>Participants</b>	<b>Intervention Characteristics</b>	<b>Results/Conclusions</b>	<b>Limitations/Biases</b>
Wolfberg et al., 2004 USA	Randomized controlled trial in a University hospital.	59 couples completed study. Interested women assigned to either intervention class or control class during prenatal visits and partners identified and invited to participate. Predominately low-income, black, and inner city population.	Women randomly assigned to have partner attend either a 2-hour intervention class or control class. The intervention class included videos, open discussion, and role-playing. By the end of class, participants could explain the benefits of breastfeeding and defend breastfeeding among family and friends. Control class included topics about general child safety like care seat use, fire safety, lead-exposure prevention, sleeping safety, and bath safety. Both classes taught by same male facilitator who was also black and a father. Most fathers attended during their partner's third trimester. All participants received a stipend. Infant feeding method collected from women at 2, 4, and 8 weeks postpartum.	Mothers whose partners attended the breastfeeding class were significantly more likely to initiate breastfeeding (P=0.02) but no significant difference for duration of breastfeeding at 2, 4, and 8 weeks postpartum.	Significant attrition during study; only 59 couples completed study after contacting 567 mothers. Found fathers were reluctant to attend classes without mother.  Classes attended by partners of women more likely employed and less likely to be on welfare. Could not evaluate demographic variables because authors did not collect data on partner who did not attend one class.

While the identified interventions may have been conducted in different countries, settings (e.g., hospital or community), or target populations (e.g., levels of socioeconomic status), the main purpose of each intervention was to include the partner in breastfeeding education. The goal for each intervention was to teach the partners about breastfeeding health benefits for mom and baby, why male partners are an important and necessary part of the infant feeding decision-making process, and strategies they could use to support the breastfeeding mother. Given similar goals and strategies, the nine interventions share many key components outlined in Table 2.3. Specifically, all nine discussed partner support strategies to facilitate breastfeeding, five included a one-on-one educational session with the male partner and/or couple, four delivered information in a group setting, one used a video to deliver information, four provided an informational leaflet developed for the male partner, five included an open discussion session, four offered peer support, and two provided incentives.

**Table 2.3. Key components shared by nine interventions.**

Intervention	Components							
	One-on-one educational session	Group Setting	Video	Informational leaflet	Open discussion session	Peer support	Incentives	Partner support strategies
Cohen et al., 2002	X	X						X
Ingram & Johnson, 2004	X			X	X			X
Ingram & Johnson, 2009	X			X	X			X
Lovera et al., 2010; Stremler & Lovera, 2004						X	X	X
Pisacane et al., 2005	X			X				X
Sciacca & Dube et al., 1995; Sciacca & Phipps et al., 1995		X				X	X	X
Sheehan, 1999		X			X	X	X	X
Susin et al., 1999; Susin & Giugliani, 2008	X		X	X	X			X
Wolfberg et al., 2004		X			X	X	X	X

The nine interventions employed a variety of strategies and venues to engage the male partners. For example, Ingram and Johnson (2004, 2009) created partner-focused literature, and Piscane et al. (2005), Susin et al. (1999), and Susin and Giugliani (2008) developed literature and videos depicting fathers taking active roles in household chores and childcare. Sciacca and Dube et al. (1995), Sciacca and Phipps et al. (1995), and Wolfberg et al. (2004) offered participants incentives to attend the educational programs. Sciacca and Dube et al. (1995) and Sciacca and Phipps et al. (1995) also gave incentives for meeting different criteria specified by the intervention, like attending a prenatal childbirth preparation class and contacting a breastfeeding peer counselor within 2 days postpartum.

Interventions were delivered in healthcare facilities, participants' homes, and the workplace. Ingram and Johnson (2009) utilized community healthcare workers trained to support midwives (called maternity care assistants) to deliver one-on-one education to partners in their homes at prenatal appointments. In another example, Cohen et al. (2002) tested a workplace breastfeeding support program, The Fathering Program, which provided male employees and their partners with breast pumps and access to lactation consultants 7 days a week. Infants whose fathers participated in the program were breastfed an average of 8 months, and 69% of the women (most employed) were breastfeeding at 6 months. Wolfberg et al. (2004) describe how having a peer dad lead group classes of expectant fathers in a University hospital increased the breastfeeding initiation rates of their participants.

Only two of the interventions mention incorporating theory into the educational programs, and only one mentions a theory of health behavior. Theories are interrelated concepts that are useful because they can help explain or predict behaviors or events and can suggest ways to develop more effective programs and intervention strategies. Increasing importance has been placed on the use of theory in evidence-based practice, as indicated by its inclusion by the Task Force on Community Preventative Services in their criteria for systematic reviews (Glanz & Bishop, 2010; Zaza et al., 2000). The intervention by Sheehan (1999) incorporated two adult learning approaches based in

experiential learning--feminist pedagogy and situated cognition. Having members of a local breastfeeding peer support group and their spouses teach the intervention operationalized the adult learning theories, which also included a woman demonstrating breastfeeding. The participants were then separated by gender to further discuss different aspects of breastfeeding. Feminist pedagogy asserts that women learn best when translating theoretical concepts into real life experiences and when authority is shifted from the teacher to the student. The concept of situated cognition is that adults learn best by being in an environment where they can observe and imitate. The other theory-based intervention was the WIC Peer Dad Program in Texas. Utilizing the Theory of Planned Behavior, the intervention addressed subjective norms, attitudes, and perceived control by having dads train other dads in breastfeeding basics and the importance of being a supportive spouse (Lovera et al., 2010; Stremler & Lovera, 2004).

### **Discussion**

Research included in this review suggests that male partners prefer breastfeeding and believe it is the most natural and healthy choice for mom and baby. However, they do not feel that the method of infant feeding was their decision, feel left out of the mom-baby relationship, and are uncomfortable with breastfeeding in public. Men want to be involved in the breastfeeding process, but few have been given the opportunity to gain the knowledge or been given the practical tools to contribute to a successful breastfeeding relationship. An intervention to increase male partner support of breastfeeding would need to intervene in multiple ways, for example, by enhancing knowledge, empowering men to be more involved in the breastfeeding decision, providing specific tips on how men can be involved in breastfeeding, and increasing comfort with breastfeeding in public.

As suggested by Glanz and Bishop (2010), interventions designed within the framework of an appropriate theory of health behavior change are more effective than those without a theoretical foundation. There is little evidence indicating that basing interventions on theory would improve outcomes of breastfeeding interventions specifically. In a review summarizing the effectiveness of interventions using peer-based

models and theories, Webel, Okonsky, Trompeta, and Holzemer (2010) found no significant effects on breastfeeding behaviors. The authors suggest that the interventions may not have been effective because of the heterogeneity of the outcomes, although it is often appropriate to combine behavior change outcomes in health behavior change theories. However, research suggests that interventions conducted in other areas of public health that employ a theoretical base are more effective than those that do not use a theory. For example, in a Cochrane Collaboration Systematic Review evaluating theory-based interventions for contraception, Lopez, Tolley, Grimes, and Chen-Mok (2011) concluded that interventions that were theory-based had better results. In considering the needed components of a male partner-focused intervention, structuring it within the framework of the Social Cognitive Theory (SCT) could help improve its design and increase its effectiveness (Figure 2.2).

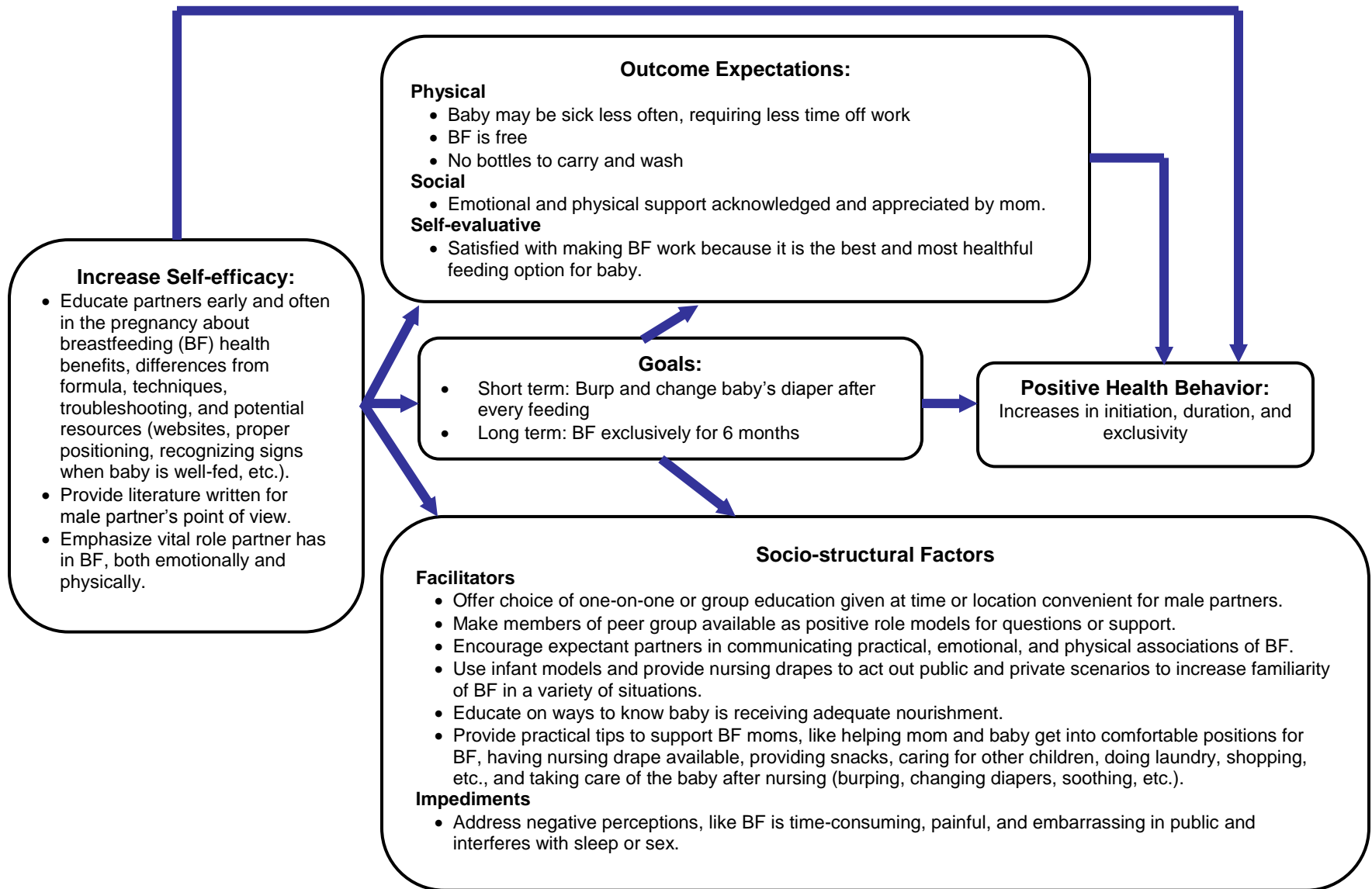


Figure 2.2. SCT key determinants and example applications for intervention. Adapted from Bandura (2004), p. 146.

Sharma and Petosa (1997) assert that the effects of interventions could be enhanced with the SCT framework because it “proposes a triadic, dynamic reciprocity among environmental factors, and behavior” (p. 1311) and it explains the interaction of personal factors, behaviors, and the environment (Baranowski, Perry, & Parcel, 2002; Glanz & Bishop, 2010; Sharma & Petosa, 1998). According to Bandura (2004), the SCT core set of determinants include:

*Knowledge* of health risks and benefits of different health practices, *perceived self-efficacy* that one can exercise control over one’s health habits, *outcome expectations* about the expected costs and benefits for different health habits, the *health goals* people set for themselves and the concrete plans and strategies for realizing them, and the *perceived facilitators* and social and structural *impediments* to the changes they seek (p. 144).

The extended SCT model is much more complex involving many more constructs, but the simplified framework presented by Bandura (2004) defining the core determinants is well suited for a partner-focused breastfeeding intervention.

Self-efficacy, having the confidence to complete a task, is the key determinant that directly and indirectly influences other determinants, including outcome expectations, socio-structural factors, goals, and behaviors. The literature already identifies self-efficacy as a contributing factor to the success of breastfeeding (Blyth et al., 2002; Dennis, 1999, 2006; Dennis & Faux, 1999) and of women-focused breastfeeding interventions and peer counseling programs (Nichols, Schutte, Brown, Dennis, & Price, 2009; Rossman, 2007). For example, Dennis (1999) proposed a breastfeeding self-efficacy framework in which personal experience, observational learning, verbal persuasion from credible sources, and emotional experiences directly affect breastfeeding behaviors. Nichols et al. (2009) developed a self-contained workbook for pregnant woman based on Dennis’ (1999) self-efficacy framework and found that women who were in the intervention group had significantly higher breastfeeding self-efficacy and higher number of breastfeeding days than women in the control group.

Interventions that incorporate the partner should attempt to increase his self-efficacy by increasing his knowledge through educational sessions, peer support, role modeling by males who have supported their partners through long-term breastfeeding, environmental support (like nursing drapes), the use of infant models to act out different scenarios to increase comfort levels with breastfeeding in public, and providing practical ways to support the breastfeeding mom.

Breastfeeding education and decision-making should begin before the pregnancy. Partner-focused educational literature should be developed and could take multiple forms including printed literature, videos and DVDs, or websites. As in four of the identified interventions, partner-focused literature and/or videos were used to illustrate how the partner could be more involved in childcare and other household duties (Ingram & Johnson, 2004, 2009; Piscane et al., 2005; Susin et al., 1999; Susin & Giugliani, 2008). The importance of fathers' emotional support and other support duties should be highlighted.

Educational programs should be flexible and offered when fathers are available to attend. For example, training could be delivered via phone call or web access if group meetings are not convenient. The intervention could also be delivered in the couple's home at a time when both the mom and her partner are available, which was seen as a successful strategy in the two interventions described by Ingram and Johnson (2004) and Ingram and Johnson (2009). The men felt comfortable asking questions and appreciated being actively included in the discussion. A peer-led class in a non-lecture, informal setting to encourage discussion and participation could help to engage expectant fathers, as seen in Wolfberg et al. (2004). The intervention should create an opportunity for open discussions early in pregnancy. Early discussions during pregnancy would establish the importance of addressing problems, or providing reassurance, and encourages couples to communicate the practical, emotional, and physical associations of breastfeeding as long as it continues (Pavill, 2002).

Breastfeeding education for dads should not end with the prenatal education. Partners should have the self-efficacy to make breastfeeding work for as long as possible.

Follow-up with the breastfeeding mom should include a follow-up with the dad to monitor how he is handling the situation. Ingram and Johnson (2009) noted that the maternity care assistants delivering the intervention to the couples in their homes did not have contact with the families after delivery, but would have liked to have followed up with the families to gauge how breastfeeding was going. Breastfeeding support could also be extended to the workplace, as demonstrated by Cohen et al. (2002). Providing breastfeeding support in the workplace encourages positive breastfeeding behaviors by making resources more accessible during the workday and providing paid time off to attend medical appointments.

It is also important to address possible impediments that may deter breastfeeding, like perceptions that breastfeeding is time consuming, interferes with sleep or sex, and is embarrassing in public. For example, Sheehan (1999) incorporated local breastfeeding support group members, their partners, and a breastfeeding woman into training of expectant couples to address misconceptions about managing and incorporating breastfeeding into the family.

As indicated by the SCT, expected physical, social, or self-evaluative outcomes of behaviors are also important factors to address. For example, some physical benefits partners can expect by breastfeeding include that their infant may be sick less often and that breast milk is less expensive than formula and always ready at the right temperature. By knowing how to support the breastfeeding mom, the male partner may help reduce stress in the family, and the mom will appreciate his actions. In evaluating the behavior, men should be satisfied with knowing that breastfeeding is the best and most healthful feeding option for baby.

None of the interventions included in the review mention goal setting as a part of the intervention. Setting goals, both short- and long-term, is also an important component of the SCT. Short-term goals could be as simple as making plans to burp and change baby after every feeding or engaging other children during each feeding. Long-term goals could include exclusively breastfeeding for 6 months. Male partners should be encouraged to communicate their short and long-term goals with their partner.

## Conclusion

Current national breastfeeding prevalence in the US does not meet the HP 2020 objectives for breastfeeding. A woman's decision to breastfeed often happens very early in pregnancy. Many interventions have targeted low-income women in the WIC program; however, outcomes of these interventions have been disappointing. Negative perceptions, both personally and publicly, of breastfeeding may decrease the likelihood that women will breastfeed. Reasons for not initiating or for discontinuing exclusive breastfeeding before the recommended 6 months include lack of positive support from their informal social structures. Informal support, particularly by the partner, has been repeatedly shown to be a major influence on a woman's decision to breastfeed.

This review presented evidence on how influential public and family opinion, especially those of close personal contacts, can be in the initiation, duration, and exclusivity of breastfeeding. Some promising interventions that increase knowledge about breastfeeding benefits among male partners of new mothers, who appear to be the most influential in breastfeeding decisions, were described.

Despite recommendations to target male partners in breastfeeding education, this review found only nine interventions targeting the partner. More effort is needed to develop and test interventions targeting fathers and partners to increase breastfeeding initiation, duration, and exclusivity. This review supports conducting further research in extending breastfeeding education to male partners and developing effective interventions to include women's support structures. Also, given that public health interventions are often more successful when using a theoretical model of health behavior change, and that male-targeted interventions must address knowledge, attitudes, social norms, expectations, and self-efficacy, it is suggested that the SCT be used as a guiding framework for intervention development.

### **CHAPTER 3. WHAT DO FATHERS REALLY THINK ABOUT BREASTFEEDING? IMPLICATIONS FOR A THEORY-BASED INTERVENTION**

#### **Abstract**

Research shows that male partner attitudes, knowledge, and feelings about breastfeeding can influence a family's breastfeeding experience. The objective of this study was to understand the male partner's perceptions of breastfeeding with the hope that findings could inform the development of interventions to increase their support of breastfeeding. Information was collected through interviews with 14 male partners of low-income pregnant women or new mothers. Data were analyzed using grounded theory methods. All men appreciated breastfeeding's health benefits, acknowledged that it was natural, and were empathetic to the efforts of the mom. However, the men also discussed not being involved in the breastfeeding decision, believing formula feeding was more convenient than breastfeeding, feeling left out of the infant-feeding process, and being uncomfortable with breastfeeding in public. Findings suggest that an intervention to increase male partner support of breastfeeding would need to intervene in multiple ways—to enhance knowledge, to empower men to be more involved in the breastfeeding decision, to provide specific tips on how men can be involved in breastfeeding, and to increase comfort with breastfeeding in public. A multi-component framework such as the Social Cognitive Theory could be useful in guiding the development of such an intervention.

#### **Keywords**

Breast feeding, social support, spouse, domestic partners, interpersonal relations, health education, qualitative research

## **Introduction**

The male partner is repeatedly mentioned in literature as an important element in successful breastfeeding, but is often excluded from the mom and baby relationship. Traditional focus in research has been on the mom and baby feeding relationship, often referred to as a “breastfeeding dyad.” The term dyad, defined as two units linked as a pair, automatically excludes the male partner from the relationship and breastfeeding process (Lawrence & Lawrence, 2005; Pavill, 2002). However, focusing on the dyad alone is not producing the results needed to make breastfeeding the universal norm. Expanding the “breastfeeding dyad” to a “breastfeeding triad” recognizes the importance of the male partner in supporting and strengthening breastfeeding efforts and the impact that the informal support structure can have in promoting breastfeeding (de Montigny & Lacharite, 2004; Goodman, 2005; Lawrence & Lawrence, 2005; Pavill, 2002; Sharma & Petosa, 1997).

Informal breastfeeding support, such as from partners, family, and friends, is more influential than support from formal sources, such as physicians and clinic staff (Dennis, 2002; McInnes & Chambers, 2008). Women have more contact, access, and interaction with their personal social structures than with formal healthcare providers, and research indicates that the mother’s male partner and the new mom’s mother are the two most influential sources of informal social support (Arora, McJunkin, Wehrer, & Kuhn, 2000; Bar-Yam & Darby, 1997; Clifford & McIntyre, 2008; Dennis, 2002; Freed & Fraley, 1993; Freed, Fraley, & Schanler, 1992; Giugliani et al., 1994; Kessler, Gielen, Diener-West, & Paige, 1995; Mahoney & James, 2000; Pollock Bustamante-Forest, & Giarratano, 2002).

Although male partners are an important part of the breastfeeding process, there is a noticeable gap in the literature describing their attitudes toward, knowledge of, and feelings about breastfeeding (Pavill, 2002; Pollock et al., 2002). Existing qualitative data suggest that male partners feel excluded from the mom and baby relationship that begins during pregnancy and do not feel included in the breastfeeding process (Fägerskiöld, 2008; Februhartanty, Bardosono, & Septiari, 2006; Gamble & Morse, 1993; Jordon &

Wall, 1990; Morrison, Reza, Cardines, Foutch-Chew, & Severance, 2008; Okon, 2004; Schmidt & Sigman-Grant, 1999; Tohotoa et al., 2009).

One of the most frequently cited qualitative studies, by Gamble and Morse (1993), found differences between the fathers' expectations of breastfeeding and their actual experiences of it. Fathers' prenatal expectations of breastfeeding as the best choice for their baby were incongruent with the personal consequences of having a breastfed baby. For example, some fathers felt helpless when baby was hungry and mom was not available or felt that their relationship with their baby needed to be postponed until weaning had occurred. The male partner also may believe that feeding the infant with a bottle is an activity in which he can participate and help the mother, providing him a sense of intimacy with the new baby.

Two recent qualitative studies, one conducted in Australia and the other in Indonesia, suggest the mothers felt that the male partners' support did make a difference and that a team effort was helpful in successfully breastfeeding. The studies found that the male partners would like to be involved but did not have access to, or were not given information about, breastfeeding and were unprepared to be effective parents (Februhartanty et al., 2006; Tohotoa et al., 2009). As noted by a new dad in a qualitative study of fathers during the immediate postpartum period, "Breastfeeding was what I found most difficult. I didn't know how to help, I felt useless" (de Montigny & Lacharite, 2004, p. 333). Other concerns of male partners noted in the literature are that breastfeeding is bad for the breasts and makes them unattractive, that it interferes with sex or the couple's relationship, or that breastfeeding in public is embarrassing or unacceptable (Bar-Yam & Darby, 1997; Fägerskiöld, 2008; Jordan & Wall, 1993; Sharma & Petosa, 1997; Schmidt & Sigman-Grant, 1999; Stremmler & Lovera, 2004).

Traditionally, breastfeeding has been supported in Hawai'i, but it is no longer the cultural or societal norm (Flood & Dodgson, 2010; Morrison, Reza, Cardines, Foutch-Chew, & Severance, 2008; Oneha & Dodgson, 2009). According to Oneha and Dodgson (2009), breastfeeding decisions and support involve the 'ohana or extended family. A supportive breastfeeding environment would be "involvement of the 'ohana (as defined

by the woman) to be present, convey knowledge, encourage, empathize, provide respite, acceptance, and comfort” (Oneha & Dodgson, 2009, p. 93). In a qualitative study of new mothers in Hilo, Morrison et al. (2008) found that the opinion of the boyfriend or husband was more influential on the breastfeeding decision than the mother’s knowledge of the health benefits of breastfeeding. There was a perception among the mothers that allowing the boyfriends or husbands to bottle-feed gave mothers more free time and gave the fathers bonding time with the infant. The young women often bottle-fed because they felt breastfeeding would detract from their sexuality. A nurse practitioner interviewed during the study believed that many boyfriends were possessive of their girlfriend’s breasts, and the young moms quit breastfeeding because of encouragement to bottle-feed by their moms and boyfriend and not because of their stated excuse of discomfort (Morrison et al., 2008).

The author found no studies in Hawai‘i that asked male partners about their breastfeeding attitudes, knowledge, and feelings. The purpose of this qualitative research was to gain information about breastfeeding from male partners of pregnant women and new mothers in Hawai‘i through interviews using grounded theory methods. It was hoped that findings could inform the development of male partner-focused interventions. Incorporating the lived experiences of the group being targeted by an intervention could help strengthen its capacity to improve rates of initiation and duration of breastfeeding.

## **Methods**

### ***Design***

The qualitative research design using grounded theory was selected because the methods involve collecting and analyzing data simultaneously, which allow concepts and variables to emerge from the phenomenon under study without preconceived hypotheses (Charmaz, 2009). Interviewing the male partners allowed an in-depth analysis of their perceptions of breastfeeding based on their own experiences and views (Creswell, 2009). This study was approved by the University of Hawai‘i Committee on Human Studies and the Hawai‘i Department of Health Institutional Review Board.

### ***Participants***

A convenience sample of 14 male partners of expectant or early postpartum women was interviewed for a pilot study and current research at two Special Supplemental Nutrition Program for Women, Infant, and Children (WIC) clinics in Hawai'i from March to December 2010. Men who were accompanying a woman on a WIC visit were asked to participate if they were over the age of 18, expecting a child or had a child less than one year old, and could read and write in English. Male partners were approached and asked to participate with an offer of a \$10 gift card to a local convenience store, and interviewing continued until responses became repetitive. In recruiting males, six of those approached were not able or willing to participate; however, 14 agreed and provided written consent, resulting in a 70% participation rate. Demographic data were not collected on the male partners who were unable or unwilling to participate, but one did not meet the age criterion, three stated they did not have enough time to participate, and two seemed uncomfortable with the idea of an interview in the WIC clinic.

### ***Data Collection***

Breastfeeding is a topic that is unfortunately usually relegated to women, and the research was conducted at WIC clinics with predominantly female staff and clients. Thus, private, individual interviews were considered the most appropriate data collection strategy for this research. We hoped this would encourage the male partners to speak freely, remove possible influence of the moms, and reduce social desirability bias and perceived social stigma that may occur in a group setting.

Interviews were semi-structured around a series of questions to determine the male partners' attitudes, knowledge, and feelings of breastfeeding. An initial set of questions was developed from a literature review of existing qualitative research and in collaboration with the Hawai'i WIC Breastfeeding Coordinator and lactation experts. In keeping with the strategies of grounded theory, the questions were framed to explore the research question and to be sufficiently broad to elicit responses about a wide range of experiences and narrow enough to gather specific descriptions from the participants

(Charmaz, 2009). These questions were piloted in study conditions in interviews with four male partners from March to April 2010, which suggested minor edits to one question and deleting another that yielded a similar response. For example, the opening question was changed from ‘What do you know about breastfeeding?’ to ‘What do you know about infant feeding?’ so that all participants could respond regardless of their experiences with infant feeding. In another example, a question used in the pilot study asked about the advantages of breastfeeding and another asked about the positive aspects of breastfeeding, which resulted in similar responses. The question referring to the positive aspects of breastfeeding was dropped, leaving ‘What are some advantages to breastfeeding? Any disadvantages?’ (Table 3.1).

**Table 3.1. Interview questions for male partners of expectant or early postpartum WIC clients.**

- |     |   |
|-----|---|
| 1.  | What do you know about the types of infant feeding?   |
| 2.  | What are some advantages to breastfeeding? Any disadvantages?   |
| 3.  | What did you think about breastfeeding before your partner became pregnant?   |
| 4.  | Do you know anyone who has breastfed?   |
| 5.  | Do you know anyone who is currently breastfeeding?  |
| 6.  | If you have been around a breastfeeding woman, what was it like for you?  |
| 7.  | What is the father’s role in the decision to breastfeed or formula feed?  |
| 8.  | How would you make a decision concerning breastfeeding?   |
| 9.  | Would you feel comfortable discussing breastfeeding with your partner?  |
| 10. | How do you feel about your partner breastfeeding away from home?  |
| 11. | If there was an educational program created just for partners, what information would you like to see included? Would you attend? |
| 12. | Any other thoughts before we close?   |

For purposes of describing the sample, each participant was asked to complete a demographic form, including birth date, current work status, ethnicity, number of children, marital status, health insurance, and education (see Appendix A).

Participants were provided with a verbal explanation of the study, asked to complete the consent and background information form, reminded that there were no right or wrong answers, and assured of confidentiality. All participants agreed for the interview to be digitally recorded (see Appendix B). Before the interview began, it was assigned an identification number to be used on the transcript of the interview. No names were recorded during the interview sessions, and all interview materials were kept in a

secure cabinet. Time needed for completion of the consent and demographic forms was approximately 10 minutes. Interviews ranged from 7 minutes to 20 minutes in length. Before the interview began, male partners were given the \$10 gift card in thanks for their participation.

Interview contact summary sheets were completed after each discussion to help systemize field notes and maintain accurate information about each interview (see Appendix C). This increased data reliability and encouraged analytic thinking about all new data. Information collected included the people, events, or situations involved, the main themes or issues raised, research questions most focused on during the interview, new hypotheses or speculations, and research reflections (Miles & Huberman, 1984).

### *Analysis*

The 14 interviews were transcribed verbatim and analyzed using techniques described by Charmaz (2009). Data were organized and sorted into theoretical categories using line-by-line and focused coding and memo writing. The initial line-by-line coding remains close to the data and is provisional, meaning the coding can be reworked to better fit the data as new information is collected. It also attempts to define actions in the data and asks questions of the data such as ‘What is this data a study of, what are the processes, and what does it suggest?’ and ‘What theoretical category does this data indicate and from whose point of view?’ (Charmaz, 2009; Glaser, 1998). Focused coding, the second step, involved reducing large amounts of data into categories that are represented most frequently or significantly in the data. Memo-writing, the final step, was crucial to the data analysis process because it illuminated the substantive categories of the data by encouraging the constant comparative method with each stage of analysis. Once analysis was complete, four core categories emerged that followed a trajectory from birth through the first few months: “making the decision,” “making it work,” “feeling left out,” and “crossing the line.” Demographic data were analyzed using SPSS 18.0 software; descriptive statistics, such as percentages, means, and standard deviations, were computed to describe the sample population.

## **Findings**

### ***Characteristics of Male Partners***

The majority (93%) of the men were married to the woman they had accompanied to the WIC appointment. Of the 14 men, 21% were expecting a child and in their third trimester, 43% had infants less than 6 weeks of age, and the remainder had children ranging in ages from 6 weeks to 8 months of age. Of the men who were expecting a child, all had other older children. Their average age was 30 years (range of 20 to 45 years). About 57% had attended some college or technical school, 93% were working for wages and/or a fulltime student, and 86% had health insurance. Half of the men identified themselves as white, 29% as Asian, 14% as Native Hawaiian/Pacific Islander, and 7% as African American (Table 3.2).

**Table 3.2. Characteristics of male partners participating in the interviews.**

<b>Characteristic</b>	<b>Number (%)</b>
<b>Age Group</b>	
≤ 25	3 (21)
25-30	6 (43)
≥ 30	5 (36)
<b>Married</b>	13 (93)
<b>Expecting or having child less than one year of age</b>	
Expecting	3 (21)
≤ 6 weeks	6 (43)
> 6 weeks	5 (36)
<b>Number of children</b>	
1	7 (50)
2	2 (14)
3	5 (36)
<b>Education</b>	
9-11	1 (7)
High School/GED	3 (21)
Some college	8 (57)
College graduate	2 (14)
<b>Working and/or fulltime student</b>	13 (93)
<b>Had Health Insurance</b>	12 (86)
<b>Race/Ethnicity</b>	
Native Hawaiian/Pacific Islander	2 (14)
Asian	4 (29)
African American	1 (7)
White	7 (50)
Hispanic/Latino	1 (7)

***Themes*****Making the decision.**

Most of what the fathers knew about breastfeeding came from their wives, their mothers, or reading information on cans of formula. One dad acknowledged that his wife had read many books, but most of what he knew he heard from others. Another removed himself from the responsibility of knowing anything about breastfeeding because “she knows all that stuff” and “let her deal with that part.” Three dads stated that they had sought information from books and the Internet to learn about different types of infant

feeding. Four commented that the breastfeeding information provided by WIC was helpful, including a poster on the wall listing the “Top 10 Reasons to Breastfeed.” Three reported that healthcare professionals encouraged them to be open to formula feeding in case breastfeeding doesn’t work out.

Eight of the 14 fathers revealed they felt they were secondary in making decisions about infant feeding and thought “it was totally up to the mother.” They may have an opinion and give input, but ultimately they felt the decision to breastfeed was the mom’s to make because “it’s the wife, woman that has to deal with the pain of breastfeeding, how it hurts, and the woman that has to actually, you know, has to sit there and pump for hours or feed the child.” As one dad said,

It’s my opinion, okay, the father is a really important part in this process, but, at the same time is secondary. Okay, he has to give support and try to incentivate [*sic*] the breastfeeding process, but he is secondary. That’s my opinion, okay? He has to follow the mom, try to guide, but he is secondary.

Two said that breastfeeding was not part of their “universe,” and they did not talk about or have opinions about breastfeeding before becoming a father. One new father said he wanted to believe that the decision to breastfeed or formula feed was “half and half” but also thought, “the mother should get more of a vote because she was the one doing it.” Two fathers felt it was “a family decision, not just a one-person decision. ... [to do] whatever they feel is going to be more healthy for the baby ... [and] which is best for [them] too.” One dad believed breastfeeding was the best way to feed the baby, and was disappointed when the mom chose not to continue; however, he concluded that the decision was the mom’s because the breasts were “not [his] property.”

Alternatively, two dads’ views of breastfeeding were based on their family’s cultural knowledge. To them and their wives, breastfeeding was not perceived as anything but the most reasonable and natural way of feeding the baby because they had come from countries (Brazil and Indonesia) where large families are common, and they grew up surrounded by breastfeeding women. Although the dad from Brazil appreciated the efforts of the lactation consultants who visited them “like every five minutes” in the

hospital and gave them the “same speech,” it was unnecessary because, from his cultural perspective, there was no question that the baby would be breastfed.

Seven dads felt that babies were ultimately in control of deciding how they wanted to be fed, and the parents were there to manage the demand. The mom was doing the actual feeding, and the dad could want the baby to breastfeed, but the baby was making the final decision by simply “not taking to breastfeeding.” Male partners mentioned problems in breastfeeding, like the baby not wanting to latch or not “taking to breast milk.” One dad reported that he and his wife had many problems in feeding their first child, reporting: “... she tried breastfeeding, but [the baby] didn’t take to that, and we tried everything else, and we had to go with the most expensive ... formula [before] he would take to it.” Using themselves to justify their own babies’ responses, two dads said they had been told by their mothers that, when they were infants, they had stopped breastfeeding or “rejected [their mother’s] breast milk,” resulting in the switch to formula. One father reported that his baby demanded to be breastfed, and “your opinion it doesn’t matter, kay [*sic*], she has to be breastfed.”

All but two men saw breastfeeding as natural, healthy, and inexpensive compared to formula, and said it would have been the preferred choice. However, four dads spoke specifically about the convenience of formula feeding and reported that the couple’s decision was to combine breastfeeding and formula feeding. Thus, after the birth of the baby, most dads thought the best method of infant feeding was whichever method was chosen by mom and most convenient for the family. Ultimately, although most male partners acknowledged that breastfeeding was important and the most healthful choice for the infant, they also acknowledged that if breastfeeding wasn’t possible, formula was available as an option to feed the baby.

The reasons women chose not to breastfeed were important to the dads, and formula feeding was seen as a poor choice if chosen for the wrong reasons. Two of the fathers had heard other women talk about the physical effects of breastfeeding. They made it clear during their interviews that they didn’t think it was a good idea to stop breastfeeding just because women “don’t want their boobs to sag.” A dad whose wife

stopped breastfeeding because she could not manage it with her work schedule felt it was selfish when women who stayed at home didn't breastfeed: "Mothers that stayed at home and didn't go to work and didn't breastfeed, I would wonder why, why not?" Although men supported their wives' decisions, many fathers of formula-fed babies would have breastfed their child had they been responsible for choosing how to feed their babies.

However, two men admitted that breastfeeding looked difficult:

I would like to think that I would put up with it and go through with it all the way.

It just seems like guys are more prone to, ah, 'I don't want to deal with it and I'm not going to do it,' right? But, I don't know, with the girls, I always try to think that even if it's something I don't want to do, would my mom have done it for me?

### **Making it work.**

Becoming a new parent is an exciting experience but it is also stressful, and it can be difficult to strike a balance between daily life, managing other children, and caring for a new baby. "Making it work" emerged as a core infant feeding management strategy that enabled the male partners the flexibility to take care of themselves, the mom, and the new baby.

Dads mentioned several practical benefits to formula feeding. For example, a father of twins mentioned that the formula made their babies sleep longer. Two other dads mentioned it was a comfort to know exactly how much baby was getting with the bottles of formula, and another said it offered freedom to the mom and gave her a chance "to get out of the house ... relax a little bit and not have to worry about the baby." A dad with a medical background recognized the benefits of breastfeeding, but was influenced by his sister's experience with exclusively breastfeeding, seeing that she was unable to leave the baby for even "five minutes." He worried what would happen "if the mom's not there [and] the child or the infant is used to breastfeeding only." Four said that their ability to make a bottle and feed their child in the middle of the night was a good method of showing support and helping the mom. It prevented the moms from performing double duty because with "formula, it's easier ... and she [doesn't] have to worry about, you

know, pumping for a half an hour to get a quarter of a bottle.” The moms’ need to return to work was seen as a very valid reason to switch to formula:

Ultimately, we’ve preferred breastfeeding. The only reason we switched over was because she had to go back to work. And, we tried; we tried pumping so we could stay with breast milk, but that ended up not working after awhile, so we switched over to formula feeding.

A dad that was familiar with breastfeeding because he had grown up watching his mom and aunts breastfeed was saddened by the couple’s unsuccessful attempts at breastfeeding. However, he felt his son did not respond well to breast milk and did “not grasp the breast early enough.” Another worried that, because the baby did not want to latch on and “just doesn’t get it,” it was “like the baby was rejecting” the mom, which caused stress after birth. A dad felt he had to be flexible and let the baby tell the parents what worked best:

Well, it depends on how the child wants to do it. Cause there’s sometimes the baby might not latch on because the nipple is too soft and not hard enough. So if you try the bottle, and he or she likes the bottle then that would be a way. But sometimes their tongues are not too developed or not developed enough, they’ll want the breast more than the bottle. And there are babies like that, that just want breast or just the bottle or some just want to suck on the nipple or binky, just to suck on it. ... If it was my choice, I would do anything and everything to make sure my baby gets what she wants.

### **Feeling left out.**

Four dads said they felt left out of the infant feeding process and did not know how to support the breastfeeding mother. Specifically, they said they felt like a “third wheel” in the mom and baby dyad. Although they felt outside of the mom and baby feeding relationship, many dads wanted to facilitate breastfeeding. But, as one dad reported, “I’d like to participate. I love it, ok, and I [always asked] what can I do to help you out ... Because she was breastfeeding, um, either breastfeeding or pumping ... I couldn’t do anything to help.”

Other dads were not satisfied in their role of support and wanted to do more than “just doing the dishes or making dinner.” One expressed guilt over not being able to be more helpful, especially “when the baby’s crying at three o’clock in the morning and we’re only breastfeeding. It takes a lot out of my wife.” Although he preferred breastfeeding and breast milk for his children, one dad felt relieved when they started formula feeding:

It makes me feel better when we [are] bottle-feeding because it feels like I’m not doing anything when they’re only breastfeeding. Like she’ll wake up in the middle of the night and I can’t do anything, right? So, I’ll bring my child to her, right? But when it’s a bottle, we can take turns [with the feeding].

All the fathers understood that it took time and commitment of the mother to breastfeed. The dads recognized that even though the mom may naturally produce breast milk, “it requires, for them, a lot more work, a lot more commitment.” They saw and appreciated the effort the mom was putting into the process. Pain was a common experience for the breastfeeding mom, and seeing the mom in pain often distressed the dads. In watching his girlfriend try to feed his daughter, a dad saw how the baby would “get frustrated and start scratching and biting and it kinda hurts for the mom.” While watching his wife breastfeed, one dad noticed how she winced in pain and stated “it’s easy for the guy to say, yeah it’s better, do it that way, but he’s not the one getting bitten or whatever.” Most of the men had great respect for what the moms were doing. After his infant daughter latched on to him one time, one dad declared, “I felt that latch and it was kinda painful .... It made me realize what our females, what females around the world, are going through when they have infants or toddlers.”

### **Crossing the line.**

Breastfeeding is no longer universal, it is not a cultural norm, and breasts have been sexualized in the media. Although breastfeeding is “natural,” ten dads felt breastfeeding was not appropriate in public and were uncomfortable by it. Many dads felt moms were ‘crossing the line’ between decency and immodesty when breastfeeding in

public. Although many acknowledged that breastfeeding is “just feeding a baby,” it was something that could also be perceived as risqué.

Five dads supported public breastfeeding as long as the mom covered up, but five others felt a breastfeeding mom should be in another room, out of sight. As one dad said, “just try to hide it as much as you can I guess.” Minimizing public interaction was important, and the dads felt it important to convey that although they felt “it’s nothing perverted or sexual... it’s natural, but it’s still uncomfortable.” One dad felt particularly uncomfortable with his older male children seeing their mom breastfeed the new baby girl and said, “the boys ... one of them is getting to be too old to, you know, see his mama’s stuff and all ... So she decided, you know, not to have it around. ... She just didn’t want the boy seeing it.”

Most of the male partners did not grow up surrounded by large extended families and were not exposed to breastfeeding women. Two of the male partners said they had grown more comfortable with breastfeeding over time. One dad believed that breastfeeding was important and, after his experience with his first child, “matured a little bit more” and learned to appreciate it.

Only two of the dads seemed entirely comfortable with breastfeeding. Both had grown up watching women, including their mothers, aunts, and sisters, breastfeed. Thus, breastfeeding seemed normal to them. One stated that breastfeeding filled him with “amazement and wonderment” because it seemed miraculous that the breast could provide baby with all the needed nutrients.

A woman’s attitude while breastfeeding in public was also important. Three dads mentioned that some women have “no shame” when they are breastfeeding in public. This was viewed as a strength by one dad, who grew up poor and was surprised that women were able to be “really confident that nothing would happen ... [when they went] out in public and just let ... baby feed from you.” Others felt it that the moms should not be “just whipping it out everywhere” or be “on display for everyone.” One dad, whose babies had been fed formula since birth, could not understand how a woman could breastfeed in public without suffering embarrassment. Another didn’t want his wife

breastfeeding around “other dudes.” Another felt that being around a breastfeeding woman was acceptable as long as she was a stranger but not if she was a friend:

If it’s a close family member ... I wouldn’t want to be in that same room. But if it’s in public and it’s somebody I don’t know, then I don’t care if they’re in the chair next to me, because I’m not going to talk to them [and] feel awkward for them ... If it was my friend’s wife or something, I would feel uncomfortable, thinking that maybe he’s thinking I’m looking at her hooters.

***Male Partner Thoughts about a Father-Focused Intervention***

One of the interview questions asked male partners what information they’d like to see included if an educational program were created for them. All fathers believed that a formal education program about breastfeeding created just for dads would be helpful, especially for first-time fathers. Dads mentioned wanting to learn more about the health benefits for mom and baby, the pros and cons of breast milk and formula, and cost comparisons. They also wanted specific tips as to how they could help facilitate the breastfeeding process. One third-time dad of breastfed babies implied that his learning of breastfeeding techniques helped when their first child had difficulties latching. Having felt left out of the infant feeding decision, one dad wanted to “learn more knowledge [*sic*] and any information we can get because really, we don’t know. Like I said before, it’s like kinda [*sic*] her decision ... but maybe if we knew how it is better ... [I] could give her more of an opinion.” Another dad believed that if more information was available on how the dads could participate in every aspect of infant care, “breastfeeding would come naturally.”

**Discussion**

Managing a new baby in a nuclear family without the support of extended family or an established social network can be an overwhelming transition for new parents. When breastfeeding is going poorly, the mom’s closest support is often her male partner, and he is not likely to encourage her to continue breastfeeding (Fägerskiöld, 2008; Februhartanty et al., 2006; Goodman, 2005). In this study, most male partners wanted to be actively involved in infant feeding and searched for effective ways of being supportive

and helpful in caring for the new baby. Most were empathetic with their wives, and felt bad if they were in pain or not sleeping. But, because men did not have to breastfeed the baby, most felt that it was the women's decision to initiate or stop breastfeeding. Formula feeding was seen as a convenient way for male partners to interact with the baby and help the mom reduce her stress, pain, and sleep deprivation. Also, few were comfortable seeing women breastfeeding in public. These attitudes about breastfeeding are not conducive to increasing initiation or duration rates, and they work against changing societal norms.

Since the conceptualization of this study, new literature has been published supporting its findings. These investigations have found that male partners acknowledged breastfeeding is healthy and natural, but did not feel that the method of infant feeding was their decision; they felt left out of the mom-baby relationship and were uncomfortable with breastfeeding in public (Avery & Magnus, 2011; Henderson, McMillan, Green, & Renfrew, 2011; Sherriff & Hall, 2011; Sherriff, Hall, & Pickin, 2009; Vaaler et al., 2011). Like the current study, the literature recommends the development of interventions targeting male partners.

An intervention to increase male partner support of breastfeeding would need to intervene in multiple ways by, for example, enhancing knowledge, empowering men to be more involved in the breastfeeding decision, providing specific tips on how men can be involved in breastfeeding, and increasing comfort with breastfeeding in public. The Social Cognitive Theory (SCT) could be a useful theoretical framework of health behavior change to develop partner-targeted breastfeeding interventions because it guides the intervention developer to consider people, behaviors, environment, and social norms (Baranowski, Perry, & Parcel, 2002; Rimer & Glanz, 2005; Sharma & Petosa, 1998). Constructs of the SCT that could be used to shape an intervention include behavioral capability, outcome expectations, self-efficacy, observational learning, self-regulation, and reinforcements. Behavioral capability is the knowledge and skills needed to perform specific actions for changing behaviors. Outcome expectations are the results that are expected by performing different behaviors. Self-efficacy is the self-confidence needed to

successfully perform a behavior and overcome barriers. Observational learning occurs by seeing the behavior performed by others and is reinforced when the behavior is practiced. Self-regulation occurs when a behavior can be controlled by self-monitoring or with goal setting. Reinforcements are the positive or negative behavioral responses that determine the likelihood of continuing that behavior (Baranowski et al., 2002).

**Table 3.3. Research categories, corresponding SCT constructs, and example applications for interventions.**

Category	SCT Constructs	Applications for intervention
Making the decision	Reinforcements	Provide partner-focused educational pamphlets with pictures and phone and internet resources. Partners can contact facilitator and other members of peer support group to address problems or seek reassurance. Satisfied with making BF work because it is the best and most healthful feeding option for baby.
Making it work	Self-efficacy  Self-regulation	Educate partners early and often in the pregnancy about breastfeeding (BF) health benefits, differences to formula, techniques, troubleshooting, and potential resources (websites, proper positioning, recognizing signs when baby is well-fed, etc.). Encourage partners to participate in setting BF goals (e.g., BF exclusively for 3 months), make a plan to support the BF mom emotionally and practically (e.g., helping mom and baby get into comfortable positions for BF, having nursing drape available, providing snacks, caring for other children, doing laundry, shopping, etc.), and taking care of the baby after nursing (burping, changing diapers, soothing, etc.).
Feeling left out	Observational learning  Outcome Expectations	Facilitate partner peer support groups in which BF couples share their experiences and show that successful long-term BF is possible and show specific examples of how the partner can support the mom while BF. Discuss advantages and challenges of BF to raise expectations. For example, breastfeeding may seem more time consuming, but there are no bottles to carry, keep cool, wash, and it's free and baby may be sick less often.
Crossing the line	Behavioral capability	Use infant models and provide nursing drapes to act out public and private scenarios to increase familiarity of BF in a variety of situations. Encourage expectant partners in communicating practical, emotional, and physical associations of BF.

Paired with an appropriate construct of the SCT, each category that emerged from this research within the WIC population can be addressed to create an effective father-

focused intervention (Table 3.3). Partners must participate for the intervention to be successful, so the educational programs should be flexible and offered when fathers are available to attend. For example, training could be delivered via phone call or web access if group meetings are not convenient.

In the category “making the decision,” the fathers did not feel confident in their ability or authority to participate in infant feeding decisions. Breastfeeding education and decision-making should begin before the pregnancy, and all male partners should be encouraged to participate. In line with the SCT construct reinforcements, partner-focused educational pamphlets and access to a peer support group with father facilitators may help to create discussions early in pregnancy, address problems, or provide reassurance.

In the category “making it work,” fathers were looking for infant feeding management strategies. To address SCT constructs self-efficacy and self-regulation, the intervention should inform the fathers about the basic aspects of breastfeeding like health benefits and differences with formula, and encourage them to participate in setting breastfeeding goals, like exclusive breastfeeding for 3 months. Tasks like helping calm the baby before feeding, ensuring mom and baby are comfortable, help with positioning to enhance latching, burping, and diaper changing, or learning to recognize the signs that baby is getting enough nourishment would help give fathers the confidence that successful breastfeeding is a team effort. The importance of fathers’ emotional support and other support activities should be highlighted. Once breastfeeding has been established, the male partner can help feed the baby expressed breast milk from a bottle (Pavill, 2002). Breastfeeding education for dads should not end with the prenatal education. Partners should have the self-efficacy and self-regulation to “make it work” for as long as breastfeeding continues, and follow-up with the breastfeeding mom should include a follow-up with the dad to gauge how he is handling the situation

In the category “feeling left out,” the father felt somewhat outside of the mom and baby relationship and did not know how to help. Corresponding to the SCT constructs of observational learning and outcome expectations, participation in partner peer support groups facilitated by breastfeeding couples could help new dads hear about successful

long-term breastfeeding and give specific examples about how the partner can support the mom while breastfeeding and other activities to bond with their new baby. In such groups, other fathers could discuss why they valued breastfeeding, how they made breastfeeding work for the family, and how breastfeeding was a team effort (Rempel & Rempel, 2011). Also, it is important to encourage open and honest discussions between the mom and dad to ensure couples have similar thoughts and feelings about breastfeeding.

As discovered in the category “crossing the line,” dads were discomforted by public breastfeeding. Learning how to manage breastfeeding in public is important in increasing comfort levels with breastfeeding and an important step in making breastfeeding a cultural norm. In line with the SCT construct of behavioral capability, the intervention should include talks by peer moms and dads to describe how they handle breastfeeding in public and to model how to use nursing drapes in different scenarios.

There are many ways a new dad can be a part of the new baby’s life that are not associated with infant feeding that expands the breastfeeding dyad to a triad and includes the father in the breastfeeding team (Rempel & Rempel, 2011). It is important that tangible and realistic ideas be incorporated into any prenatal education including the male partners.

The results from this research are similar to recently published literature, suggesting that the male partners who participated in this research in Hawai‘i are similar to male partners in other locations and with a variety of different socio-demographic characteristics. In this study, every effort was made to hear from a wide range of male partners. Unfortunately, not all male partners are able to attend the WIC appointments, which may have limited the variety of participants. In addition, WIC programs and policies focus on moms, and specifically low-income moms, and this study interviewed partners of low-income moms. It also is possible that male partners who attended the WIC clinic appointments are different than those that did not attend. Therefore, the findings are not generalized to all male partners. The convenience sampling employed in this study is a form of theoretical sampling where data are collected to develop emerging

categories and theories until saturation is reached; however, a convenience sample will not reflect population distributions or assure generalizability. It is a method to “reflect qualities of [the] respondents’ experiences and provide a useful analytic handle for understanding them” (Charmaz, 2009, p. 100). The qualitative approach engaged in this research resulted in meaningful categories that have emerged from other studies and that could inform future intervention development (Avery & Magnus, 2011; Henderson et al., 2011; Sherriff & Hall, 2011; Sherriff et al., 2009; Vaaler et al., 2011).

The variety of populations represented in the recent published literature suggests that the components of the father-focused intervention proposed in this study could have broad application. However, pilot interventions will need to be developed and tested to determine if there is generalized applicability in a variety of populations and settings.

Data for this study came directly from the individuals who would be the beneficiaries of the programs. Building interventions from the ground up by integrating their lived experiences may be an effective strategy in affecting change in the population. Breastfeeding research has traditionally focused on mom and baby without recognizing the contributions and involvement of the male partner. Exploring male partners’ knowledge and attitudes about breastfeeding suggests several ideas for a father-focused intervention based on the SCT that might expand the breastfeeding dyad to a triad and help increase breastfeeding initiation and duration.

## **CHAPTER 4. BREASTFEEDING ATTITUDES: ASSOCIATION BETWEEN MATERNAL AND MALE PARTNER ATTITUDES AND BREASTFEEDING INTENT**

### **Abstract**

Breastfeeding is considered the best infant feeding method, yet initiation and duration rates in the US are lower than recommended by medical and public health professionals. Positive attitudes toward breastfeeding of the male partner are important in a mom's success at initiating and maintaining breastfeeding. This study measured the infant feeding attitudes of low-income women and their male partners using the Iowa Infant Feeding Scale (IIFAS), investigated the reliability and validity of the measure in male partners, and examined the associations of the partner's attitudes with the mom's attitudes and intentions to breastfeed. A convenience sample of 112 pregnant women and their male partners completed a three-part survey on socio-demographic items, the IIFAS, and their intended infant feeding method in the hospital and in the first few weeks after the infant's birth (breastfeeding, formula feeding, mixed, and don't know). Mom and partner IIFAS scores were highly correlated, and higher scores of both moms and partners were significantly associated with their intentions to breastfeed. With each increased point on mom and partner IIFAS scores, the odds that mom and partner intended to breastfeed in the first few weeks increased 12% and 20%, respectively. Future research on breastfeeding attitudes and attitude-changing interventions is needed to see if improving partner attitudes towards breastfeeding will also improve moms' attitudes, and if that increases initiation and duration of breastfeeding.

### **Keywords**

Bottle-feeding, breast feeding, domestic partners, fathers, feeding methods, mothers, spouse, social support

## **Background**

Breastfeeding initiation rates in the US have been increasing in the past 40 years, from a low of 22% in 1972 to the current rate of 75% (Centers for Disease Control [CDC], 2010; Wright, 2001). However, most states fall short of national objectives for initiation (82%) and 6-month duration (61%) set by the US Department of Health and Human Services (US DHHS) Healthy People (HP) 2020, particularly for mothers of lower socioeconomic and educational levels (CDC, 2010; Dennis, 2002; Forste & Hoffmann, 2008; Milligan, Pugh, Bronner, Spatz, & Brown, 2000).

A mom's attitude towards breastfeeding is an important predictor of breastfeeding initiation and duration, and decisions about breastfeeding are often made early in pregnancy (Dennis, 2002; Thulier & Mercer, 2009). The literature suggests that male partner attitudes and support are also important in women's breastfeeding practices, but the male partner is often excluded from the mom and baby relationship (Bar-Yam & Darby, 1997; Clifford & McIntyre, 2008; Dennis, 2002). Traditionally, the mom and baby feeding relationship is referred to as a "breastfeeding dyad." The term dyad, defined as two units linked as a pair, automatically excludes the male partner from the relationship and breastfeeding process (Lawrence & Lawrence, 2005). Focusing on the dyad alone is not producing the results needed to make breastfeeding the universal and cultural norm. Expanding the "breastfeeding dyad" to a "breastfeeding triad" recognizes the importance of the male partner in supporting and strengthening breastfeeding efforts and the impact that the informal support structure can have on breastfeeding promotion (de Montigny & Lacharite, 2004; Goodman, 2005; Lawrence & Lawrence, 2005; Raj & Plichta, 1998; Sharma & Petosa, 1997). However, little research has been conducted to measure the association between male partners' attitudes and intended infant feeding methods.

Measurement tools that help quantify breastfeeding attitudes are useful for healthcare and public health practitioners in identifying parents most at risk for not initiating breastfeeding or for discontinuing it early in an infant's life. Several assessment tools have been developed to provide quantitative measures of breastfeeding knowledge

and attitudes, but these tools have been developed for and tested exclusively on mothers (Chambers, McInnes, Hoddinott, & Alder, 2007; Lewallen, 2006). The Iowa Infant Feeding Attitude Scale (IIFAS) is a validated measure that has been used to examine the relationships among mothers' attitudes, intentions, and breastfeeding outcomes (see Appendix D). In past research, the 17-item IIFAS predicted both a woman's intention to breastfeed and the duration of exclusive and partial breastfeeding (Bishop, Cousins, Casson, & Moore, 2008; De la Mora, Russell, Dungy, Losch, & Dusdieker, 1999; Dungy, McInnes, Tappin, Wallis, & Oprescu, 2008; Persad & Mensinger, 2008; Scott, Binns, Graham, & Oddy, 2006; Scott, Binns, Oddy, & Graham, 2006; Scott, Shaker, & Reid, 2004; Shaker, Scott, & Reid, 2004; Sittlington, Stewart-Knox, Wright, Bradbury, & Scott, 2007).

The purpose of this research was to 1) examine infant feeding attitudes among pregnant, low-income women and their male partners in Hawai'i's Special Supplemental Program for Women, Infants, and Children (WIC) population and 2) determine how the partner's attitudes influence infant feeding intentions. To the author's knowledge, no US study has used the IIFAS to measure breastfeeding attitudes in male partners. The hypothesis was that mom and partner attitudes about breastfeeding, as measured by the IIFAS, are correlated and that both are associated with intended method of infant feeding. Determining the association between breastfeeding attitudes and intentions in the Hawai'i WIC population during pregnancy could help inform future programming.

## **Methods**

### ***Participants***

A convenience sample of mom and partner pairs was recruited through a WIC clinic in Honolulu, Hawai'i from September to November 2010. Couples were included if they were over the age of 18, were expecting a child, and could read and write in English. The male partner did not have to be the baby's father. Expectant women and their partners were approached and asked to participate with a goal of enrolling 100 pairs. Participants were provided a verbal explanation of the study and asked to complete a detailed consent form (see Appendices E & F) and a three-part survey that included: 1) a

background information form (see Appendices G & H); 2) an infant feeding plan asking intentions to breast or bottle feed the baby in the hospital and in the first few weeks after birth (see Appendices I & J); and 3) the IIFAS.

Additionally, 57 women attending WIC appointments without their partners requested to participate. These women completed the three surveys and took home an additional survey packet for their partner to complete with instructions to mail. Of these, 14 partners responded by mail, but two were removed due to unsigned partner consent forms, leaving a total sample of 112 mom/partner pairs. Because the focus of this study was to assess partner attitudes, only observations with information from both moms and partners were included. Each mom and partner was thanked with a \$5 gift card to a local convenience store. This study was approved by the University of Hawai'i Committee on Human Studies and the Hawai'i Department of Health Institutional Review Board.

### ***Measures***

The IIFAS is a 17-item instrument developed to measure maternal attitudes toward infant feeding (Table 4.1). The IIFAS can be used with male partners because survey items are non-gendered, and, thus can be answered by men and women. Respondents are asked to rate each question on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Approximately half of the items are favorable towards breastfeeding and the rest towards formula feeding (De la Mora et al., 1999). The questions that are favorable towards formula feeding are reverse scored, and the total score is computed by summing the 17 items. Total scores range from 17 to 85, with a higher score indicating more favorable attitudes towards breastfeeding.

**Table 4.1. IIFAS survey questions and characteristics.**

	<b>BF</b>	<b>FF</b>
*1. The nutritional benefits of breast milk last only until the baby is weaned from breast milk.		X
*2. Formula feeding is more convenient than breastfeeding.		X
3. Breastfeeding increases mother-infant bonding.	X	
*4. Breast milk is lacking in iron.		X
5. Formula fed babies are more likely to be overfed than are breast-fed babies.	X	
*6. Formula feeding is the better choice if a mother plans to work outside the home.		X
7. Mothers who formula feed miss one of the great joys of motherhood.	X	
*8. Women should not breastfeed in public places such as restaurants.		X
9. Babies fed breast milk are healthier than babies who are fed formula.	X	
*10. Breastfed babies are more likely to be overfed than formula fed babies.		X
*11. Fathers feel left out if a mother breast-feeds.		X
12. Breast milk is the ideal food for babies.	X	
13. Breast milk is more easily digested than formula.	X	
*14. Formula is as healthy for an infant as breast milk.		X
15. Breastfeeding is more convenient than formula feeding.	X	
16. Breast milk is less expensive than formula.	X	
*17. A mother who occasionally drinks alcohol should not breastfeed her baby.		X

BF: questions favorable toward Breastfeeding; FF: questions favorable toward Formula Feeding  
 Questions marked with \* are reverse scored because they are favorable to formula feeding.

The scale has been shown to have good internal reliability and validity in studies in the US, Australia, Scotland, and Ireland (de la Mora et al., 1999; Dungy, et al., 2008; Persad & Mensinger, 2008; Scott, Binns, Graham, & Oddy, 2006; Scott, Binns, Oddy, & Graham, 2006; Scott et al., 2004; Shaker et al., 2004; Sittlington et al., 2007; Tappin, Britten, Broadfoot, & McInnes, 2006). In Scotland, Scott et al. (2004) and Shaker et al. (2004) administered the IIFAS to a sample of low-income expectant women and their partners and found it to be valid in predicting feeding choice. Both moms and partners of breastfed infants had higher IIFAS scores than the moms and partners of formula-fed infants. The IIFAS has also been found to have acceptable internal reliability and validity in its Croatian, Romanian, and Chinese translations (Ho & McGrath, 2010; Wallis, et al., 2008; Zakarija-Grkovic & Burmaz, 2010).

Although not based in theory, the IIFAS lends itself to quantifying the attitude portion of the Theory of Reasoned Action (TRA) in regards to breastfeeding intention. The TRA states that the most important determinant of performing a behavior is the intent to perform it, and attitudes towards that behavior are directly related to the intention to perform it (Montano & Kasprzyk, 2002). Attitudes towards a behavior such

as breastfeeding can be used as a predictor of that behavior, and knowledge is defined as the learned information that leads to taking informed action (Finnegan & Viswanath, 2002; Fishbein & Ajzen, 1975).

Intentions about infant feeding were measured using an infant feeding plan questionnaire developed by the author based on other studies describing the IIFAS and on the CDC's Infant Feeding Practices Study II (IFPS) Prenatal Survey (Fein et al., 2008). The participants were asked to answer four questions: 1) their plans for infant feeding in the hospital (breastfeeding only, formula feeding only, both breast and formula feeding, or don't know); 2) their plans for infant feeding in the first few weeks after the birth of the child (breastfeeding only, formula feeding only, both breast and formula feeding, or don't know; 3) if they had discussed the infant feeding options with their partner; and 4) the timing of the mom's infant feeding decision (before conception, between conception and 13 weeks of pregnancy, or after 13 weeks of pregnancy). For questions regarding intent, the four moms and ten partners that responded "don't know" were combined with the moms and partners who intended to both breast and formula feed, resulting in three categories for analysis: breastfeeding only, formula feeding only, and both breast and formula feeding (including "don't knows").

Socio-demographic characteristics were also collected, including current work status, plans for work or school after birth, age, ethnicity, expected due date for current pregnancy, number of previous children (if any) and how they were fed, marital status, income, education, and male partner's relationship to the mom.

### ***Data Analysis***

Data analysis was conducted using SPSS 18.0 software. Descriptive statistics, such as percentages, means, and standard deviations, were performed to describe the sample population and total attitude scores. Cronbach's alpha was calculated to estimate the internal consistency of the IIFAS in the moms, partners, and total sample. One-way between-groups analysis of variance (ANOVA) was used to compare IIFAS scores by independent variables. After a scatterplot was used to verify that there were no violations of normality, linearity, and homoscedasticity, Pearson correlation coefficients were

estimated for continuous variables to examine associations between the IIFAS attitude scores of moms and partners.

Logistic regression was used to model attitudes and intentions of infant feeding to determine how mom and partner attitudes influence a mom's intention to breastfeed, controlling for demographic characteristics. In selecting variables to be included in the regression models, a series of Chi-square tests for independence was performed and crude odds ratios were calculated. Crude odds ratios were used to assess the impact of the individual variables on intent to breastfeed in relation to the adjusted model. Most study variables were not significantly associated with intentions of infant feeding and were not included in the logistic regression model. Three were significant; Hispanic/Latino ancestry, how the mom or partner fed any previous children, and when the mom had made a decision about infant feeding. When assessing the crude and adjusted odds ratios for the characteristics of how the mom or partner fed any previous children and when the mom had made the decision for infant feeding, results did not change more than 10%, and thus these variables also were left out of the regression model.

Variables were entered into the logistic regression in three steps: 1) demographic factors including age (as a continuous variable), ethnicity, and Hispanic/Latino ancestry (Model 1); 2) demographics plus mom's IIFAS score (Model 2); and 3) demographics plus partner's IIFAS scores (Model 3).

## **Results**

### ***Characteristics of Sample Population***

The majority of moms and partners were married (75%), less than 27 years old (71% and 57%, respectively), had attended some college or technical school (58%), and had health insurance (98% and 93%, respectively). Half completed the survey during the mom's third trimester. Of the 112 pairs, 46% had other children; 27% of these women had previously breastfed and 73% had used formula or mixed feeding. Among moms, 33% were working for wages, and 10% were students. About half of the 112 women indicated they would return to work (38%) or school (18%) after the baby's birth. A large majority of the partners were working for wages (84%) and intended to return to work

within 3 weeks (45%) or 4-6 weeks (11%) after the baby was born; the remaining partners did not report time home with baby. Almost half of the moms and the partners identified themselves as white (45%). The next largest group was Native Hawaiian/Pacific Islander (22% of moms and 24% of partners), then Asian (20% of moms and 7% of partners), and African American (6% of moms and 11% of partners). Approximately 20% of the moms and the partners were of Latino/Hispanic ancestry. About 65% of the couples were affiliated with the military (Table 4.2).

**Table 4.2. Socio-demographic characteristics of the moms and partners completing the three-part survey.**

		Moms (n=112)		Partners (n=112)	
		N	(%)	N	(%)
Mean age	Mean	25.7		27.5	
	Range	18.6-41.5		18.7-52.1	
Race/Ancestry	Am Ind/Alaska Native	0	0.0	10	8.9
	Asian	22	19.6	8	7.1
	Black/AA	7	6.3	12	10.7
	NH/PI	25	22.3	27	24.1
	White	50	44.6	50	44.6
	Missing	8	7.1	5	4.5
Hispanic/Latino	Yes	20	17.9	21	18.8
Marital Status	Married	83	74.1	85	75.9
	Not married	29	25.9	27	24.1
Education	≤HS/GED	46	41.1	46	41.1
	>HS/GED	66	58.9	65	58.0
	Missing	0	0.0	1	0.9
Current work status	Working for wages/self-employed	33	29.5	95	84.8
	Not employed/unable to work	36	32.1	13	11.6
	Student	10	8.9	2	1.8
	Homemaker	31	27.7	2	1.8
	Missing	2	1.8	0	0.0
Work plans after baby is born	Return to work/school	63	56.3	96	85.7
	Homemaker	38	33.9	2	1.8
	Other	11	9.8	10	8.9
	Missing	0	0.0	4	3.4
Mean weeks home before returning to work/school?	Mean (Range)	10.9 (0-52)		2.6 (0-16)	
Health Insurance	Medicaid	23	20.6	9	8.1
	Private	18	16.1	30	26.8
	Military	69	61.6	65	58.0
	None	2	1.8	8	7.1
	Missing	1	0.9	0	0.0
Trimester at baseline	First	14	12.5	14	12.5
	Second	42	37.5	42	37.5
	Third	56	50.0	56	50.0
	Missing	0	0.0	0	0.0

		Moms (n=112)		Partners (n=112)	
		N	(%)	N	(%)
Other children	Yes	52	46.4	54	48.2
How were other children fed?	BF	14	12.5	16	14.3
	FF	11	9.8	10	8.9
	Mixed	26	23.2	21	18.8
	Not applicable	60	53.6	60	53.6
	Missing	1	0.9	5	4.5

### ***Reliability and Validity***

Consistent with past research, the IIFAS was a reliable and valid measure of breastfeeding attitudes and a predictor of breastfeeding intention in this sample of moms and their partners in the Honolulu WIC population. Internal reliability was good for moms ( $\alpha = 0.80$ ), their partners ( $\alpha = 0.78$ ), and for moms and partners combined ( $\alpha = 0.86$ ).

Validity of the IIFAS in this population was examined by associating scores with moms' and partners' intended methods of infant feeding. In this sample, the overall IIFAS mean score was 65 for moms and 62 for partners. These scores were higher than reported by IIFAS studies in US, Australia, Scotland, and Ireland, but equivalent to the Chinese study, and lower than the Romanian and Croatian studies. The results of the ANOVA suggested that women who intended to breastfeed in the hospital and in the first few weeks had significantly higher IIFAS scores (67.57 and 67.51, respectively) than the moms who intended to formula feed (50 and 51.33, respectively). The effect sizes, calculated by dividing between groups sum of squares by the total sum of squares, were large between intended feeding groups for moms and partners, ranging from 0.22 to 0.31 (Table 4.3).

When asked how they intended to feed their babies, 60% of the moms and 58% of partners indicated they would breastfeed in the hospital, and 71% of moms and 63% of partners indicated they would breastfeed in the first few weeks of the infant's life. Moms were less likely to intend to breastfeed if they were of Hispanic/Latino ancestry. A Chi-square revealed that all moms who had breastfed their previous children intended to breastfeed this next child, indicating that the question is a "perfect" predictor for intention

to breastfeed for those moms who had breastfed other children. Most moms and partners had discussed (78% and 72%, respectively) and chosen (63% and 53%, respectively) their infant feeding method prior to becoming pregnant.

**Table 4.3. Results of ANOVA for differences in IIFAS mean scores by infant feeding intent for mom and partner.**

<b>Mom</b>							
	<b>N (%)</b>	<b>Intent</b>	<b>Mean IIFAS Scores</b>	<b>Standard Deviation</b>	<b>F</b>	<b>Significance</b>	<b>Effect size</b>
<b>In hospital</b>	67 (59.80)	Breastfeeding only	67.57	8.11	21.54	p < 0.00	0.28
	8 (7.14)	Formula feeding only	50.00	7.05			
	37 (33.04)	Both breast and formula feed	62.49	6.54			
<b>First few weeks</b>	79 (70.54)	Breastfeeding only	67.51	8.05	24.89	p < 0.00	0.31
	9 (8.04)	Formula feeding only	51.33	7.71			
	24 (21.43)	Both breast and formula feed	60.17	4.31			
<b>Partner</b>							
<b>In hospital</b>	65 (59.63)	Breastfeeding only	65.85	7.18	19.11	p < 0.00	0.27
	6 (5.50)	Formula feeding only	51.83	1.72			
	38 (34.86)	Both breast and formula feed	58.68	7.60			
<b>First few weeks</b>	71 (65.74)	Breastfeeding only	65.21	7.18	9.55	p < 0.00	0.22
	6 (5.56)	Formula feeding only	53.83	3.66			
	31 (28.70)	Both breast and formula feed	58.35	8.22			

There were no statistically significant differences detected between the IIFAS scores of the pairs who had discussed the different feeding methods with each other and those who had not. Also, no significant differences were detected in IIFAS scores of the moms and the timing of their infant feeding decisions. The IIFAS scores of the partners who did not know when the moms had made their feeding decisions were significantly lower than those who knew she had decided either before she got pregnant or at 13-40 weeks.

### ***Correlation of Mom and Partner's Composite Scores***

Consistent with the research in Scotland (Scott et al., 2004), there was a strong positive correlation between mom and partner composite IIFAS scores ( $r = 0.54$ ,  $p < 0.005$ ). Because of the strong correlation between mom and partner scores, the IIFAS scores were entered into the logistic regression model individually (mom scores in Model 2 and partner scores Model 3) to avoid multicollinearity.

### ***Infant Feeding Attitudes and Intentions***

Logistic regression was used to assess the strength of mom (Model 2) and partner (Model 3) attitudes on infant feeding intentions in the hospital and in the first few weeks. For purposes of logistic regression, moms and partners were divided into two groups according to infant feeding intent: breastfeeding only vs. not breastfeeding. Intention to breastfeed was the dependent variable and outcome of interest, and independent variables included age (continuous), ethnicity, Hispanic Latino ancestry, and IIFAS score (continuous). Treating the IIFAS as a continuous variable increased the power of the model and, as indicated by the crude odds ratios, revealed a significant association with mom and partner breastfeeding attitude and infant feeding intent (Table 4.4 & 4.5). Specifically, the mom and partner were more likely to intend to breastfeed for the first few weeks with each point increase in a mom's attitude score (OR=1.20, 95% CI = 1.10-1.32 and OR = 1.12, 95% CI = 1.05-1.20, respectively). Findings were similar with intentions to breastfeed in the hospital.

**Table 4.4 Logistic regression of mom's IIFAS scores and demographic variables on feeding intentions.**

	<b>Model 1: Demographic characteristics OR (95% CI), SE</b>	<b>Model 2: Demographic characteristics, Mom's IIFAS score OR (95% CI), SE</b>	<b>Model 3: Demographic characteristics, Partner's IIFAS Score OR (95% CI), SE</b>
<b>Intent in the hospital</b>			
Mom's age	1.02 (0.94-1.12), 0.61	0.99 (0.90-1.09), 0.80	1.01 (0.93-1.11), 0.76
<b>Mom's ethnicity</b>			
White	Reference		
Asian	1.63 (0.49-5.40), 0.43	1.31 (0.37-4.68), 0.68	1.56 (0.45-5.46), 0.49
Black/African American	0.39 (0.74-2.06), 0.27	0.29 (0.05-1.72), 0.17	0.79 (0.13-4.87), 0.80
NH/PI	0.88 (0.31-2.52), 0.81	0.82 (0.27-2.53), 0.73	0.90 (0.30-2.69), 0.85
<b>Hispanic/Latino</b>			
No	Reference		
Yes	0.23 (0.06-0.86), 0.03	0.23 (0.06-0.92), 0.04	0.19 (0.05-0.78), 0.02
<b>Mom's IIFAS score</b>		1.12 (1.05-1.20), 0.001	
<b>Partner's IIFAS score</b>			1.10 (1.03-1.18), 0.004
2 log likelihood	124.44	111.17	114.15
Difference between models		13.27 <sup>a</sup>	10.29 <sup>b</sup>
Degrees of freedom		1	1
<b>Intent the first few weeks</b>			
Mom's age	1.02 (0.92-1.14), 0.65	0.98 (0.88-1.10), 0.78	1.021 (0.92-1.14), 0.71
<b>Mom's ethnicity</b>			
White	Reference		
Asian	3.14 (0.79-12.54), 0.11	2.43 (0.53-11.07), 0.25	3.08 (0.69-13.79), 0.14
Black/African American	0.70 (0.13-3.74), 0.68	0.46 (0.07-3.23), 0.44	2.67 (0.37-19.32), 0.14
NH/PI	3.98 (1.01-15.71), 0.05	5.15 (1.09-24.25), 0.04	5.06 (1.15-22.29), 0.03
<b>Hispanic/Latino</b>			
No	Reference		
Yes	0.24 (0.07-0.90), 0.04	0.20 (0.04-0.99), 0.05	0.15 (0.03-0.72), 0.02
<b>Mom's IIFAS score</b>		1.20 (1.10-1.32), 0.00	
<b>Partner's IIFAS score</b>			1.19 (1.08-1.30), 0.00
2 log likelihood	105.67	82.89	86.80
Difference between models		22.78 <sup>a</sup>	18.87 <sup>a</sup>
Degrees of freedom		1	1
Mom's age	1.02 (0.92-1.14), 0.65	0.98 (0.88-1.10), 0.78	1.021 (0.92-1.14), 0.71

OR = Odds ratio; SE = Standard error

\*Demographic characteristics include age as a continuous variable, ethnicity, and Hispanic/Latino decent.

<sup>a</sup>p<0.001; <sup>b</sup>p<0.01

**Table 4.5. Logistic regression of partner's IIFAS scores and demographic variables on feeding intentions.**

	Model 1: Demographic characteristics OR (95% CI), SE	Model 2: Demographic characteristics, Mom's IIFAS score OR (95% CI), SE	Model 3: Demographic characteristics, Partner's IIFAS Score OR (95% CI), SE
<b>Intent in the hospital</b>			
Partner's age	1.00 (0.92-1.07), 0.89	0.97 (0.90-1.05), 0.43	0.97 (0.89-1.05), 0.40
<b>Partner's ethnicity</b>			
White	Reference		
Am. Ind./Alaska Native	0.55 (0.13-2.25), 0.40	0.62 (0.15-2.66), 0.52	0.23 (0.03-1.75), 0.16
Asian	2.93 (0.28-31.02), 0.37	3.78 (0.32-44.90), 0.29	6.01 (0.42-85.63), 0.19
Black/African American	0.26 (0.07-1.05), 0.06	0.17 (0.04-0.76), 0.02	0.54 (0.11-2.75), 0.46
NH/PI	0.62 (0.22-1.72), 0.35	0.57 (0.19-1.69), 0.31	0.46 (0.14-1.58), 0.22
<b>Hispanic/Latino</b>			
No	Reference		
Yes	0.44 (0.13-1.48), 0.18	0.56 (0.15-2.04), 0.38	0.19 (0.04-0.98), 0.05
<b>Mom's IIFAS score</b>		1.09 (1.03-1.15), 0.01	
<b>Partner's IIFAS score</b>			1.22 (1.11-1.33), 0.00
2 log likelihood	125.56	116.49	94.58
Difference between models		9.07 <sup>b</sup>	30.98 <sup>a</sup>
<b>Intent in the first few weeks</b>			
Partner's age	0.97 (0.90-1.04), 0.37	0.94 (0.87-1.01), 0.09	0.94 (0.87-1.02), 0.15
<b>Partner's ethnicity</b>			
White	Reference		
Am. Ind./Alaska Native	0.82 (0.20-3.42), 0.79	0.99 (0.22-4.46), 0.99	0.51 (0.09-2.96), 0.45
Asian	1.56 (0.23-10.53), 0.65	1.93 (0.26-14.48), 0.52	2.10 (0.25-17.56), 0.49
Black/African American	0.74 (0.20-2.82), 0.66	0.47 (0.11-2.07), 0.32	1.78 (0.38-8.44), 0.47
NH/PI	1.44 (0.49-4.25), 0.51	1.52 (0.46-5.07), 0.50	1.47 (0.43-5.07), 0.54
<b>Hispanic/Latino</b>			
No	Reference		
Yes	1.16 (0.35-3.88), 0.81	2.06 (0.52-8.17), 0.30	0.99 (0.23-4.30), 0.99
<b>Mom's IIFAS score</b>		1.12 (1.05-1.20), 0.00	
<b>Partner's IIFAS score</b>			1.19 (1.09-1.29), 0.00
2 log likelihood	125.21	110.18	99.38
Difference between models		15.03 <sup>a</sup>	25.83 <sup>a</sup>
Degrees of freedom		1	1

OR = Odds ratio; SE = Standard error

\*Demographic characteristics include age as a continuous variable, ethnicity, and Hispanic/Latino decent.

<sup>a</sup>p<0.001; <sup>b</sup>p<0.01

As shown in Tables 4.4 and 4.5, model fit improved with the addition of the mom and the partner IIFAS scores (Model 2 and Model 3, respectively). In general, using the mom or partner's attitude scores resulted in similar increases in the odds of intending to breastfeed for both mom and partner. There were no likely statistical differences between the odds ratios as indicated by the overlapping confidence intervals. IIFAS scores were

significantly associated with intentions to breastfeed when matched to mom or partner; odds ratios are slightly increased for moms with mom's score in the model and slightly increased for the partner's with the partner's score in the model, and p-values decreased in the models when the moms' scores were added into the partners' regression model or the partners' scores were added to the moms' regression model. Although the partner's score does seem to have slightly more effect on the partner's intentions of infant feeding, it did not influence intention over and above the mom's attitude and estimates are essentially the same when considering random variation.

### **Discussion**

An important finding in this study is that the odds of the mom's intent to breastfeed in the first few weeks of baby's life increases by 20% with each point increase on her IIFAS score and 19% with each point increase on the partner's score, and these odds are higher than those for intent to breastfeed in the hospital. There were similar findings for the partner's intent to breastfeed. When added to the logistic regression model, the mom's (Model 2) and partner's (Model 3) IIFAS score strengthened the models. However, the partner's score did not affect mom's intent to breastfeed over the mom's score.

Another interesting finding is that the percent of intent to breastfeed in the hospital is lower than in the first few weeks for both the moms (60% vs. 71%) and the partners (58% vs. 63%). Given federal statistics indicating high initiation rates of breastfeeding and lower duration rates, these results were unexpected. It may be that this population expects bottle and formula use in the hospital because of the free formula provided at the hospital or that they expect their newborns to be in a nursery and separated from mom for a period of time. Although it is unknown why intentions to breastfeed would be lower in the hospital than in the first few weeks of baby's life, Tender et al. (2009) suggests that participating in prenatal breastfeeding education is associated with exclusive breastfeeding in the hospital. Further research should be conducted to determine the misperceptions, if any, couples may have about infant feeding during their hospital stay.

As in past studies, we found that the IIFAS was a reliable and valid scale to use to measure breastfeeding attitudes in our population of moms. A unique finding of this study is that the IIFAS also appears to be reliable and valid in measuring breastfeeding attitudes of the male partners in a US-based population. The IIFAS successfully predicted intended method of infant feeding, with higher mean scores of moms and partners who intended to breastfeed. Interestingly, item 11 (Fathers feel left out if a mother breastfeeds) was poorly correlated with the total score of the scale. Both moms (63.4%) and partners (68.7%) disagreed with item 11, and the low corrected item-total correlation values (0.06-0.02) may indicate that item 11 is not an appropriate measure in the scale for this population. The scale's Cronbach's alpha is higher for the moms, their partners, and combined when the item is excluded from the scale (0.81, 0.80, and 0.87, respectively). This is contradictory to findings in qualitative literature, which suggest that men do feel left out of the breastfeeding process and that couples sometimes prefer formula feeding because fathers feel more included if they can feed baby with a bottle (Avery & Magnus, 2011; Bar-Yam & Darby, 1997; Clifford & MacIntyre, 2008; Dennis, 2002; Gamble & Morse, 1993; Goodman, 2005; Jordan & Wall, 1990; Henderson et al., 2011; Schmidt & Sigman-Grant, 2000; Sherriff, Hall, & Pickin, 2009; Sherriff & Hall, 2011; Tohotoa et al., 2009). As suggested by Sittlington et al. (2007), the mom and partners may have given what they perceived as more socially acceptable answers about the shared duties of infant feeding in the WIC clinic setting. Also, not all male partners attend clinic appointments, and those that attend may feel less "left out" of infant-related activities in general.

Similar to findings from a study of low-income women and their partners in Scotland, the IIFAS scores of mom and partner were highly correlated, suggesting that couples shared similar views about infant feeding (Scott et al., 2004; Shaker et al., 2004). The Scotland-based investigators assert that the partners' attitudes could be considered a proxy for the mom's attitude. This suggests that improving partner attitudes of infant feeding could improve mom's attitudes (or vice versa). It also suggests that poor partner

attitudes should be a target of future interventions and that research should test the ability of partner-focused interventions to increase the odds that the mom will breastfeed.

Another question is whether a partner with more positive attitudes towards breastfeeding than the mom could favorably influence the breastfeeding attitudes and intentions of the mom. For example, mom's attitudes and intentions could be measured before and after her partner completes a partner-focused intervention, and over-time scores compared. If scores increase after the partner's participation, it would suggest that the male partners can have a positive effect on mom's attitudes and intentions.

The IIFAS appears to be a reliable and valid measure of infant feeding attitudes and could be used by WIC. Hawai'i WIC enrollment increased to 37,000 women in 2010 (USDA, FNS, 2011, April) from 32,000 in 2006. However, funding has decreased, prompting discussions about how best to target specific WIC services to the most at risk and how to increase the proportion of WIC clients that breastfeed, who are less costly for WIC to serve than are WIC clients who formula feed. The IIFAS is easy to administer, as the majority of participants in this study completed it in 5 minutes while waiting for their WIC appointment. Its completion could be incorporated in the initial WIC visit, when new clients meet with WIC staff to document background, financial, medical, and diet information. IIFAS scores could identify women and partners for intervention who are more negative toward breastfeeding. The IIFAS could help identify specific misconceptions about breastfeeding held by clients.

As noted in Table 4.1, IIFAS items 1, 2, 4, 6, 8, 10, 11, 14, and 17 are favorable towards formula feeding. More than 50% of the moms and partners were neutral towards or agreed with items 2, 6, 14, and 17. Additionally, partners were neutral towards or agreed with items 1, 4, 8, and 10. For example, approximately 62% of partners were neutral or agreed with the item 14, "Formula is as healthy for an infant as breast milk." This presents an opportunity for WIC counselors to correct this misconception and emphasize the health differences between formula and breast milk for both mom and baby. They could provide clients with appropriate literature, supplemental videos, and

websites, and suggest a meeting with a WIC breastfeeding peer counselor to reinforce this message.

Also, WIC provides breastfeeding education to pregnant women at each appointment, and several local hospitals provide free or low-cost breastfeeding education classes. However, these classes primarily target women (Sharma & Petosa, 1997; Stremler & Lovera, 2004). Because education is an important component in increasing positive attitudes, the male partners should be included in educational efforts and the breastfeeding decision-making process from preconception. US programs could use the IIFAS to measure effectiveness of such interventions. For example, it was recently used to compare pre- and post-training participant attitudes in a 20-hour United Nations International Children's Emergency Fund/World Health Organization (UNICEF/WHO) breastfeeding training course for health professionals in Croatia, and IIFAS scores were significantly higher post-training (Zakarija-Grkovic & Burmaz, 2010).

A limitation of conducting the research in a WIC clinic is that some women do not bring their partners to clinic appointments, which may have limited the ability to recruit couples that represented all infant feeding attitudes. During the study timeframes, researchers observed that approximately 30% of women brought their partners. These women may be fundamentally different from moms who did not bring a partner, and these women's partners may be different from partners who did not attend. Of those women who took information home to their partners, few partners (approximately 30%) returned survey materials in the study timeframe. The partners that attended the appointments may feel more strongly about the pregnancy and the decisions about infant feeding. Clients that chose to participate may be different from those that did not, resulting in volunteer bias. Also, a large proportion of the Honolulu WIC clinic population was associated with the military, which may have biased results of the analysis and not created an adequate representation of the male partners associated with Hawai'i WIC.

Surveys were administered to moms and partners while they waited for their WIC appointment. Because they could not be separated from each other, their responses to

IIFAS items may have influenced each other, increasing the likelihood that IIFAS scores would be correlated. Also, although it was explained that participation in the study would not affect services received in the clinic, results could be more positive towards breastfeeding because participants were giving socially acceptable answers in the environment of the clinic and because of the topic of the survey itself (Sittlington et al., 2007). However, if participants were truly reacting to the environment and survey, we would have expected even higher mean composite scores than observed. Also, Shaker et al. (2004) and Scott et al. (2004) found a similarly high mom-partner correlation in the IIFAS scores even though they separated moms and partners while completing the IIFAS. Although results should be interpreted with caution because attitudes are self-reported, and cross-sectional, results suggest indicate that changing a modifiable behavior, such as encouraging those with less positive attitudes about breastfeeding to become more positive, can have a real effect on breastfeeding rates.

### **Conclusion**

Informal breastfeeding support, like the support from a male partner, can be more influential than formal sources like physicians and clinic staff (Dennis, 2002; McInnes & Chambers, 2008). Without the informal support of the male partner, women are more likely to choose bottle-feeding. Changing the negative attitudes and perceptions of breastfeeding in male partners could be one method to increase breastfeeding rates in the US. Tools such as the IIFAS that can identify those with negative attitudes are helpful in developing interventions and directing education where it is most needed.

This study was the first to administer the IIFAS to WIC clients in Hawai'i and is unique because it is the first in the US to administer the IIFAS simultaneously to moms and partners. In this study, the results still showed good validity and reliability, and results were similar to other studies using the IIFAS. The IIFAS successfully determined that mom and partner attitudes are associated with infant feeding intention, and higher IIFAS scores were significantly associated with intentions to breastfeed. Mom and partner scores are highly correlated and equally important in their association with intent to breastfeed, indicating the importance of including the male partner in breastfeeding

education during pregnancy, which is a valuable contribution to the literature. Understanding the magnitude of the effect of the male partner's attitudes on infant feeding intentions will be helpful in targeting future development of interventions.

Current models of interventions and education have not been successful in increasing breastfeeding rates to national targets. To reach national targets, interventions must be developed for mothers and their male partners who are least likely to breastfeed.. The IIFAS is a measurement tool that can be used to understand modifiable characteristics in WIC clients, like the negative attitudes of male partners. More research should be conducted involving a larger and more representative sample of low-income moms and their partners.

## CHAPTER 5. CONCLUSION

There are four important conclusions from the findings of the three studies in this dissertation research. First, male partner breastfeeding attitudes are important and predictive of infant feeding intentions. However, the male partner is often excluded from the mom and baby relationship (Bar-Yam & Darby, 1997; Clifford & McIntyre, 2008; Dennis, 2002). Results of the three papers indicate that male partners would like to be more involved in infant feeding, but have not been given the opportunity to participate in infant feeding decisions, given models to follow, or provided enough information to adequately support a breastfeeding woman. These findings are consistent with current and past research (Avery & Magnus, 2011; Bar-Yam & Darby, 1997; Clifford & MacIntyre, 2008; Dennis, 2002; Gamble & Morse, 1993; Goodman, 2005; Jordan & Wall, 1990; Henderson et al., 2011; Schmidt & Sigman-Grant, 2000; Sherriff, Hall, & Pickin, 2009; Sherriff & Hall, 2011; Tohotoa et al., 2009).

Second, attitudes about breastfeeding are most often collected from the mom. In this research, attitudes about breastfeeding were collected directly from the male partner. Results suggest that couples share similar views about infant feeding, implying that improving partner attitudes about infant feeding could improve mom's attitudes towards breastfeeding (or vice versa). It is unknown whether a partner with more positive attitudes towards breastfeeding than the mom could favorably influence the breastfeeding attitudes and intentions of the mom, and more research should be done to determine the association.

Third, male partners interviewed in this research indicated that they would like education and information created just for them. While literature consistently suggests that male partners be included in breastfeeding interventions and education, to the author's knowledge, this is the first instance of soliciting the opinion of male partners about breastfeeding education (Avery & Magnus, 2011; Bar-Yam & Darby, 1997; Goodman, 2005; Schmidt & Sigman-Grant, 2000; Sharma & Petosa, 1997; Vaaler et al., 2011). Developing programs using information from the individuals most likely to benefit from the programs is helpful in creating effective programs (Atweh, Kemmis, &

Weeks, 2002; Glanz & Bishop, 2010; Mertler, 2008; Riel, 2010). Findings provide ideas for a multifaceted male partner-focused intervention based on the Social Cognitive Theory (SCT). The goal of programs targeting male partners should be to increase the knowledge and self-efficacy of the male partner so that he can be more involved in infant feeding decisions and in supporting breastfeeding.

Fourth, the Iowa Infant Feeding Attitude Scale (IIFAS) appears to be reliable and valid in measuring breastfeeding attitudes in this US-based population. Unique to this study, it proved to be reliable and valid in the male partners. To the author's knowledge, this is the first time the IIFAS was administered to males in the US and to men and women simultaneously.

### **Implications for Practice**

The findings for this dissertation research suggest two major recommendations for practice. First, as mentioned in Chapter 1, the Special Supplemental Program for Women, Infants, and Children (WIC) has an active breastfeeding promotion program, yet WIC clientele are less likely than non-WIC participants to breastfeed (Hayes et al., 2008; Ryan & Zhou, 2006). Also, WIC participants often exhibit the non-modifiable characteristics associated with lower breastfeeding rates, like giving birth at a young age or having low income. Focusing on the modifiable characteristics of new mothers, like moms' and male partners' attitudes about breastfeeding, could help increase breastfeeding rates (De la Mora et al., 1999; Dennis, 1999, 2002; Forste & Hoffman, 2008; Persad & Mensinger, 2008).

Measurement tools that help quantify breastfeeding attitudes are useful for healthcare and public health practitioners in identifying parents most at risk for not initiating breastfeeding or discontinuing it early in an infant's life (Chambers et al., 2007; Lewallen, 2006). The IIFAS is a straightforward survey that took each couple approximately 4 minutes to complete, and could be integrated into clients' initial visits at the WIC clinics and used as a screening tool. Total scores are easily calculated and lower scores could identify which moms and/or partners have more negative attitudes or misconceptions about breastfeeding. The IIFAS also could be used as a pre- and posttest

measure in testing the effectiveness of new or existing interventions. It recently showed promising results in this capacity in a Croatian group of healthcare professionals (Zakarija-Grkovic & Burmaz, 2010).

Second, WIC provides breastfeeding education to pregnant women and support to breastfeeding women at each appointment, but WIC and other programs should include male partners in the educational and support process. The male partners discussed in Chapter 3 indicated they would like programs created just for them. In Chapter 2, nine educational programs or strategies were identified that involved the partner in supporting the new mother in breastfeeding, and most had a positive impact on breastfeeding behaviors. For example, Wolfberg et al. (2004) describe how having a peer dad lead group classes of expectant fathers in a University hospital increased the breastfeeding initiation rates of their participants. In another example, Ingram and Johnson (2009) utilized community healthcare workers trained to support midwives to deliver one-on-one education to male partners in their homes at prenatal appointments.

Only two identified interventions mentioned using theory in program development, even though interventions employing an appropriate theory have been found to be more effective than those without a theoretical foundation because theory provides a systematic way of understanding events and behaviors (Glanz & Bishop, 2010). Sharma and Petosa (1997) assert that the effects of interventions could be enhanced with the SCT framework because it “proposes a triadic, dynamic reciprocity among environmental factors, and behavior” (p. 1311) and it explains the interaction of personal factors, behaviors, and the environment (Baranowski, Perry, & Parcel, 2002; Glanz & Bishop, 2010; Sharma & Petosa, 1998). Because individuals are influenced by their social environment, this suggests that changing behaviors of individuals can also change the environment, thus changing social norms. Breastfeeding interventions need to work on the interpersonal level by increasing male partner knowledge and self-efficacy, discussing outcome expectations, and setting realistic short- and long-term goals. The mom and the male partner should be treated as a team working towards a common goal

with support from facilitators, and impediments should be addressed so the couples are able to persist together through the challenges of breastfeeding.

WIC's *Loving Support to Implement Best Practices in Peer Counseling*, an established mother-to-mother peer support program in WIC clinics nationwide, has been shown to have a positive impact on breastfeeding behaviors and is a program that could be extended to new dads (Gross et al., 2009; Olson, Haider, Vangjel, Bolton, & Gold, 2010; Yun et al., 2010). Using *Loving Support* as a model, Texas WIC created a father-to-father peer dad program that trained dads to support other dads (Lovera et al., 2010; Stremler & Lovera, 2004). While couples that participated in the father-to-father peer counseling program did not breastfeed longer than those who did not participate, the program had the unanticipated benefit of bringing more male partners into the clinic.

### **Implications for Policy**

Findings suggest three recommendations for policy change that could be effective in increasing the participation and support of the male partner in breastfeeding and make progress in reaching the HP 2020 objectives. First, birth facilities should become more active in achieving the United Nations International Children's Emergency Fund (UNICEF) and the World Health Organization (WHO) Baby-Friendly Hospital Initiative (BFHI) status. The BFHI establishes policies in the healthcare system that provide optimal support for breastfeeding moms and their babies and have been shown to improve breastfeeding rates (Abrahams & Lobbok, 2009; DiGirolamo, Grummer-Strawn, & Fein, 2008; Merewood, Mehta, Chamberlain, Philipp, & Bauchner, 2005). BFHI facilities have been recognized for their role in emphasizing the importance of breastfeeding from the first moment in life with information, confidence building, and the skills needed for successful breastfeeding. The male partner must be included in the process so he can be confident in his ability to support breastfeeding from the start. Currently, there are 119 baby-friendly hospitals in the US. Only one hospital is certified in Hawai'i but, in 2010, the state received stimulus funds to move all hospitals in the state towards a BFHI designation.

Second, worksites should take a more active role in supporting breastfeeding for male and female employees. Currently, 24 states, not including Hawai‘i, have laws related to breastfeeding in the workplace (National Conference of State Legislatures, 2011). Recent national policy has strengthened support for worksite lactation programs. In 2010, the Health Care Reform Act, Section 4207 stated that an employer shall provide break time and a place to express milk for one year after the child’s birth. Worksite lactation programs that have been expanded to include the male partner have been shown to be effective in improving breastfeeding outcomes. For example, as discussed in Chapter 2, Cohen et al. (2002) describe how “The Fathering Program” at the Los Angeles Department of Water and Power resulted in higher breastfeeding duration rates as compared to national averages and in a cost savings to the company by reducing healthcare costs and absenteeism.

Third, governments should give male partners the opportunity to be at home with the new baby and mom for a period of time after birth. Paternity leave is a policy initiative that has shown promise in increasing breastfeeding rates in other countries (Fägerskiöld, 2008; Flacking et al., 2010). It allows dads to take time off work after the birth of a child or an adoption and can range for a few days to a several months. Established in the US in 1993, the federal Family and Medical Leave Act (FMLA) allows unpaid time off for up to 12 weeks, but is limited to individuals working for federal, state, or local government, companies with at least 50 employees working within a 75 mile radius of the workplace, and employees who have worked for at least 12 months at approximately 25 hours per week. At the end of the 12 weeks, the employer must have a similar job with the same salary and benefits available for the returning dad. In 2002, California initiated the first paid family leave law in the country. Other states, like Connecticut and Wisconsin, have strengthened the unpaid leave law by covering smaller employers, extending time for leave, and permitting intermittent leave (Progressive States, n.d.).

A large proportion of the participants in this research were associated with the military. In 2008, Congress passed the Fiscal Year 2009 National Defense Authorization

Act that included provisions for paternity leave and states “a married member of the armed forces on active duty whose wife gives birth to a child shall receive 10 days of leave to be used in connection with the birth of the child” (Kapp, Burrelli, Henning, & Best, 2008). Although paternity leave is mandated, many service members who participated in this study were unaware of the allowed time off.

Other recent legislation supporting policy changes in Hawai‘i include House Concurrent Resolution 158 (HCR 158). In 2010, the Hawai‘i House of Representatives signed HCR 158, urging the Hawai‘i Department of Human Services and the Department of Health to develop programs encouraging breastfeeding among mothers who receive medical assistance from Medicaid (HCR 158, 2010). Many women who qualify for Medicaid also participate in WIC. While HCR 158 does not allow for additional funding, it sets a foundation in Hawai‘i to promote opportunities like developing new educational programs that target the male partner or expanding the current *Loving Support* peer counseling program to include male partners.

### **Implications for Future Research**

Findings support three recommendations for future research. First, the scope of this research was small and should not be generalized to other populations. During data collection, approximately 30% of the male partners attended WIC clinic appointments with the mom. In Chapter 4, recruitment and retention were identified issues. Modifications were made to increase the sample size; pregnant women attending appointments who asked about the research were allowed to complete the surveys in the clinic and take a set of surveys home to their partner to be returned by mail. However, only 25% of those women’s partners returned completed forms. Thus, a total of 157 women and 114 male partners completed the surveys. It is possible that the male partners attending the WIC clinic appointments and who participated are different from the male partners who did not attend clinic appointments. Also, a large proportion of the Honolulu and the Wahiawa WIC clinic populations is associated with the military. More than half of the men who were interviewed for Chapter 3 and who completed the surveys for Chapter 4 were in the military. Future analysis should include stratification of the military

population versus the rest of the WIC clientele to determine what, if any, differences exist between the two groups.

All of the men discussed in Chapter 3 had recently had a baby or, if they were expecting, had other, older children at home, resulting in an inadequate representation of all infant feeding experiences. More comprehensive data collection, with thoughtful theoretical sampling to include men from other WIC clinics in Hawai'i with a greater variety of backgrounds and expecting first-time dads, could yield a more complete representation of men's perceptions of breastfeeding. However, recent literature supports the findings of this dissertation, as other investigators have reported very similar findings, e.g., that male partners acknowledged breastfeeding as healthy and natural but did not feel that the method of infant feeding was their decision, that male partners felt left out of the mom-baby relationship, and that male partners were uncomfortable with breastfeeding in public (Avery & Magnus, 2011; Henderson, et al., 2011; Sherriff & Hall, 2011; Sherriff, Hall, & Pickin, 2009; Vaaler et al., 2011).

Second, the findings from Chapter 4 were derived from cross-sectional data that should be interpreted with caution. This study originally included a longitudinal follow-up with the women at 8- and 13-weeks postpartum to compare actual infant feeding with intended method of infant feeding and to measure the association of breastfeeding attitudes on actual feeding methods. Email and/or phone contact information provided by many women proved unreliable; however, follow-up data were provided by approximately 51% of the entire sample of women ( $n = 80$ ). Of the 80 women who responded, approximately 60% were breastfeeding at 8 weeks and 50% were breastfeeding at 13 weeks. Data analysis is currently underway to determine if the women who intended to breastfeed are breastfeeding, and if the IIFAS score was able to predict if the woman is breastfeeding at 8- and 13- weeks. It is recommended that this research be repeated allowing for a longer recruitment and a follow-up period of one year to test relationships between breastfeeding attitudes, intentions, and behaviors.

The IIFAS scores of moms and partners were correlated, suggesting that couples shared similar views about infant feeding and it has been suggested that partners'

attitudes could be considered a proxy for the mom's attitude (Scott et al., 2004; Shaker et al., 2004). Longitudinal research should also include an examination of whether mom's attitude influences dad's attitude or vice versa. For example, mom's attitudes and intentions could be measured before and after her partner completes a partner-focused intervention, and over-time scores compared. If scores increase after the partner's participation, it would suggest that the male partner can have a positive effect on the mom's attitudes and intentions.

Third, a male partner-focused, multifaceted intervention based on the SCT is proposed based on the findings in Chapters 2 and 3. An evidence base has not been established for the feasibility or success of the intervention. Pilot projects should be developed and tested in a variety of WIC (and other) populations to determine feasibility in different clinic settings and states and the best method of delivery. WIC nutritionists, who have the most contact with the target audience, should be consulted and collaborated with to ensure the program is appropriate for their clients. A community-based approach would be the best method to use for new program development to ensure that the needs of all parties (i.e., male partners, moms, WIC nutritionists, program managers, etc.) are considered.

As an example, a male-focused intervention could be developed using an action research model where research is designed to act and improve social conditions as a result of planning, acting, developing, and reflecting. Mertler (2008) explains that action research is an opportunity to improve professional judgment and provide insight for better and more effective outcomes with specific focus on the target community. The goal of action research is to make a change in practice using participatory research that results in improvements for individuals, organizations, or the community (Riel, 2007). Integral to the action-research design is communication during each phase of the project with community and research partners. The action-research cycle is well suited for intervention development, adaptation, and refinement because it allows for constant analysis of data and participant feedback on a continuous basis and allow for further understanding as to why parents choose not to breastfeed. Information is derived from

those most likely to benefit and will be integrated into developing an intervention most applicable to the local community (Atweh et al., 2002).

### **Conclusion**

This three-study dissertation validated the importance of the male partner in breastfeeding in the Hawai‘i WIC population. While Hawai‘i was one of the few states to reach many of the HP 2010 targets, it met only one of the five HP 2020 targets. Methods are needed to continue increasing breastfeeding rates and to change the cultural norm. It is important to concentrate efforts on changing modifiable factors associated with breastfeeding, such as changing the perceptions of breastfeeding among a mom’s informal support structure, specifically the male partner, as suggested by the conceptual framework proposed in the introduction of this dissertation. Interventions are needed that target the male partner to improve his attitudes, knowledge, and feelings about breastfeeding following a health behavior change model that will produce the best outcomes. Updating practice and policy is also necessary to ensure modifications in standard breastfeeding practices are changed system-wide.

This dissertation contributes to the literature in five ways. First, results of this dissertation are consistent with published breastfeeding research, confirming that male partner’s attitudes, thoughts, and feelings regarding breastfeeding in Hawai‘i are similar to those in other locations. This suggests that education or policy targeting the population in Hawai‘i may be useful in other locations. Second, little research has been conducted about male partners and breastfeeding with the male partners as the primary research subjects. It is important to include them into the research base to adequately plan effective and efficient educational programs and develop appropriate policies to effect the greatest change. Third, it provides a framework for designing potential interventions targeting males. Redirecting the focus to changing modifiable factors associated with breastfeeding, like including and educating the informal support structure, specifically the male partner, is potentially a method to increase breastfeeding rates. Fourth, it further validates the IIFAS for use with male partners and suggests ways it could be integrated into the WIC setting as a screening and measurement tool. Fifth, it provides

recommendations for practice and policy, and proposes ideas for future research. Changing breastfeeding practices to expand the breastfeeding dyad to a breastfeeding triad and include the male partner is essential to increasing breastfeeding rates to the goals set in the new HP 2020 objectives.

## APPENDIX A. INTERVIEW BACKGROUND INFORMATION FORM

### Background information form

1. What is your date of birth? \_\_\_\_\_
  
2. What was the last grade or year of school you completed?
 

<input type="checkbox"/> 8th Grade or less	<input type="checkbox"/> Some College or Technical School
<input type="checkbox"/> Grades 9 through 11	<input type="checkbox"/> College Graduate
<input type="checkbox"/> High School Graduate or GED	<input type="checkbox"/> Other _____
  
3. Are you currently.....
 

<input type="checkbox"/> Married	<input type="checkbox"/> Divorced	<input type="checkbox"/> Widowed
<input type="checkbox"/> In relationship	<input type="checkbox"/> Separated	<input type="checkbox"/> Never married
  
4. Do you have children?
 

<input type="checkbox"/> Expecting	<input type="checkbox"/> Yes (number) _____	<input type="checkbox"/> No
------------------------------------	---	-----------------------------
  
5. Are you currently....
 

<input type="checkbox"/> Working for wages	<input type="checkbox"/> Student	<input type="checkbox"/> Homemaker
<input type="checkbox"/> Self-employed	<input type="checkbox"/> Retired	<input type="checkbox"/> Unable to work
<input type="checkbox"/> Not Employed		
  
6. If you are employed for wages or are self-employed, what kind of work do you do?  
(Please write in) \_\_\_\_\_
  
7. What kind of health insurance do you have?
 

<input type="checkbox"/> Medicare	<input type="checkbox"/> MedQuest	<input type="checkbox"/> Kaiser (non-Quest)
<input type="checkbox"/> HMSA (non-Quest)		<input type="checkbox"/> None
<input type="checkbox"/> Other (write in) _____		
  
8. Hispanic or Latino ethnicity?
 

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
------------------------------	-----------------------------	----------------------------------
  
9. What is your race and ancestry (check all that apply)?
 

<input type="checkbox"/> American Indian or Alaska Native		
<input type="checkbox"/> Asian		
<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Indonesian	<input type="checkbox"/> Laotian
<input type="checkbox"/> Chinese	<input type="checkbox"/> Japanese	<input type="checkbox"/> Thai
<input type="checkbox"/> Cambodian	<input type="checkbox"/> Korean	<input type="checkbox"/> Vietnamese
<input type="checkbox"/> Filipino	<input type="checkbox"/> Other Asian _____	
<input type="checkbox"/> Black or African American		
<input type="checkbox"/> Native Hawaiian or Pacific Islander		
<input type="checkbox"/> Micronesian	<input type="checkbox"/> Guamanian/Chamorroan	
<input type="checkbox"/> Samoan	<input type="checkbox"/> Hawaiian/Part Hawaiian	
<input type="checkbox"/> Marshallese	<input type="checkbox"/> Tongan	
<input type="checkbox"/> Melanesian	<input type="checkbox"/> Other Pacific Islander _____	
<input type="checkbox"/> White		

## APPENDIX B. INTERVIEW CONSENT FORM

Agreement to Participate in  
“Partners and infant feeding” study  
Kristen Mitchell-Box, Principal Investigator  
Department of Public Health Sciences, University of Hawai‘i

This research project is being conducted as a component of a dissertation for a doctoral degree. The purpose of the project is to learn about the partner’s knowledge and views of feeding a baby. You are being asked to participate because you are about to or recently had a baby.

Participation in the project will consist of filling out a form on background information about yourself, a short interview with the investigator, and completing one short questionnaire. Interview questions will focus on your knowledge and beliefs about the different ways to feed a baby. Data from the interview will be summarized into broad categories. No personal identifying information will be included with the research results. Completion of the form containing background data should take no more than 5 minutes. Each interview will last no longer than 30 minutes and completing the demographic form will take no longer than 5 minutes. Approximately 15 people will participate in the study. Interviews will be audio recorded for the purpose of transcription.

The investigator believes there is little or no risk to participating in this research project.

Participating in this research may be of no direct benefit to you. It is believed, however, the results from this project may help different government and non-government agencies answer questions related to feeding a baby, which may improve the health of babies.

As compensation for time spent participating in the research project, you will receive a gift card to Longs Drugs for \$10.

Research data will be confidential to the extent allowed by law. Agencies with research oversight, such as the UH Committee on Human Studies, have the authority to review research data. All research records will be stored in a locked file in the primary investigators’ office for the duration of the research project. Audio tapes will be destroyed immediately following transcription. All other research records will be destroyed upon completion of the project.

Participation in this research project is completely voluntary. You are free to withdraw from participation at any time during the duration of the project with no penalty, or loss of benefit to which you would otherwise be entitled.

If you have any questions regarding this research project, please contact the researcher, Kristen Mitchell-Box, at 230-8170.

If you have any questions regarding your rights as a research participant, please contact the UH Committee on Human Studies at (808) 956-5007, or [uhirb@hawaii.edu](mailto:uhirb@hawaii.edu)

**Participant:**

I have read and understand the above information, and agree to participate in this research project.

---

Name (printed)

---

Signature

---

Date

I understand that and agree to the interview being audio recorded.

Yes

No

**APPENDIX C. INTERVIEW CONTACT SUMMARY SHEET****Contact Summary Sheet**

(Miles & Huberman, 1984, pg. 50)

**What people, events, or situations were involved?**

**What are the main themes or issues in the contact?**

**Which research questions did the contact bear most centrally on?**

**What new hypotheses, speculations, or guesses about the field situations were suggested by the contact?**

**Where should I place most energy during the next contact, and what sorts of information should be sought?**

## APPENDIX D. THE IOWA INFANT FEEDING SCALE

### The Iowa Infant Feeding Scale

For each of the following statements, please indicate how much you agree or disagree by circling the number that most closely corresponds to your opinion:

**1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree**

You may choose any number from 1 to 5.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The nutritional benefits of breast milk last only until the baby is weaned from breast milk.	1	2	3	4	5
2. Formula feeding is more convenient than breastfeeding.	1	2	3	4	5
3. Breastfeeding increases mother-infant bonding.	1	2	3	4	5
4. Breast milk is lacking in iron.	1	2	3	4	5
5. Formula fed babies are more likely to be overfed than are breast-fed babies.	1	2	3	4	5
6. Formula feeding is the better choice if a mother plans to work outside the home.	1	2	3	4	5
7. Mothers who formula feed miss one of the great joys of motherhood.	1	2	3	4	5
8. Women should not breastfeed in public places such as restaurants.	1	2	3	4	5
9. Babies fed breast milk are healthier than babies who are fed formula.	1	2	3	4	5
10. Breastfed babies are more likely to be overfed than formula fed babies.	1	2	3	4	5
11. Fathers feel left out if a mother breast-feeds.	1	2	3	4	5
12. Breast milk is the ideal food for babies.	1	2	3	4	5
13. Breast milk is more easily digested than formula.	1	2	3	4	5
14. Formula is as healthy for an infant as breast milk.	1	2	3	4	5
15. Breastfeeding is more convenient than formula feeding.	1	2	3	4	5
16. Breast milk is less expensive than formula.	1	2	3	4	5
17. A mother who occasionally drinks alcohol should not breastfeed her baby.	1	2	3	4	5

## APPENDIX E. CONSENT FORM FOR MOM

Agreement to Participate in  
“Attitudes and infant feeding” study  
Kristen Mitchell-Box, Principal Investigator  
Department of Public Health Sciences, University of Hawai‘i

This research project is being conducted as a component of a dissertation for a doctoral degree. The purpose of the project is to learn about the partner’s knowledge and views of feeding a baby. You are being asked to participate, because you are about to have a baby.

Participation in the follow-up portion of the project will consist of receiving 2 phone calls or emails or scheduling at your next WIC appointment; one at 8 weeks postpartum and the second at 13 weeks postpartum. The phone calls, emails or follow-up contact at WIC appointment will ask how you are feeding your baby at that point in time. Data from the follow-up will be summarized into broad categories. No personal identifying information will be included with the research results and questionnaires will be assigned identification codes known only to the primary investigator. The phone calls should take no more than 10 minutes. Approximately 150 women will participate in the study

The investigator believes there is little or no risk to participating in this research project.

Participating in this research may be of no direct benefit to you. It is believed, however, the results from this project may help different government and non-government agencies answer questions related to feeding a baby, which may improve the health of babies.

As compensation for time spent participating in the research project, you will receive a gift card to Longs Drugs for \$5.

Research data will be confidential to the extent allowed by law. Agencies with research oversight, such as the UH Committee on Human Studies, have the authority to review research data. All research records will be stored in a locked file in the primary investigators’ office for the duration of the research project. Audio tapes will be destroyed immediately following transcription. All other research records will be destroyed upon completion of the project.

Participation in this research project is completely voluntary. You are free to withdraw from participation at any time during the duration of the project with no penalty, or loss of benefit to which you would otherwise be entitled.

If you have any questions regarding this research project, please contact the researcher, Kristen Mitchell-Box, at 230-8170.

If you have any questions regarding your rights as a research participant, please contact the UH Committee on Human Studies at (808) 956-5007, or [uhirb@hawaii.edu](mailto:uhirb@hawaii.edu)

**Participant:**

I have read and understand the above information, and agree to participate in this research project.

Preferred method of contact:

Phone       Email       WIC appointment

---

Contact number/ email

---

Date/ Time

I would like a copy of research results:

Yes       No

---

Address/ Email

---

Name (printed)

---

Signature

---

Date

## APPENDIX F. CONSENT FORM FOR MALE PARTNER

Agreement to Participate in  
“Attitudes and infant feeding” study  
Kristen Mitchell-Box, Principal Investigator  
Department of Public Health Sciences, University of Hawai‘i

This research project is being conducted as a component of a dissertation for a doctoral degree. The purpose of the project is to learn about the partner’s knowledge and views of feeding a baby. You are being asked to participate, because you are about to have a baby.

Participation in the project will consist of filling out a form on background information about yourself and completing two short questionnaires. Questionnaires will focus on your plans about how you will feed your baby. Data from the questionnaires and follow-up contacts will be summarized into broad categories. No personal identifying information will be included with the research results and questionnaires will be assigned identification codes known only to the primary investigator. Completion of the form containing background data and two questionnaires should take no more than 20 minutes. Approximately 300 people will participate in the study.

The investigator believes there is little or no risk to participating in this research project.

Participating in this research may be of no direct benefit to you. It is believed, however, the results from this project may help different government and non-government agencies answer questions related to feeding a baby, which may improve the health of babies.

As compensation for time spent participating in the research project, you will receive a gift card to Longs Drugs for \$5.

Research data will be confidential to the extent allowed by law. Agencies with research oversight, such as the UH Committee on Human Studies, have the authority to review research data. All research records will be stored in a locked file in the primary investigators’ office for the duration of the research project. Audio tapes will be destroyed immediately following transcription. All other research records will be destroyed upon completion of the project.

Participation in this research project is completely voluntary. You are free to withdraw from participation at any time during the duration of the project with no penalty, or loss of benefit to which you would otherwise be entitled.

If you have any questions regarding this research project, please contact the researcher, Kristen Mitchell-Box, at 230-8170.

If you have any questions regarding your rights as a research participant, please contact the UH Committee on Human Studies at (808) 956-5007, or [uhirb@hawaii.edu](mailto:uhirb@hawaii.edu)

**Participant:**

I have read and understand the above information, and agree to participate in this research project.

I would like a copy of research results:

Yes                       No

---

Address/ Email

---

Name (printed)

---

Signature

---

Date

## APPENDIX G. BACKGROUND INFORMATION FORM FOR MOM

### Background Information Form

1. What is your date of birth? \_\_\_\_\_
  
2. What was the last grade or year of school you completed?
 

<input type="checkbox"/> 8th Grade or less	<input type="checkbox"/> Some College or Technical School
<input type="checkbox"/> Grades 9 through 11	<input type="checkbox"/> College Graduate
<input type="checkbox"/> High School Graduate or GED	<input type="checkbox"/> Other _____
  
3. Are you currently.....
 

<input type="checkbox"/> Married	<input type="checkbox"/> Divorced	<input type="checkbox"/> Widowed
<input type="checkbox"/> In relationship	<input type="checkbox"/> Separated	<input type="checkbox"/> Never married
  
4. Relationship to person attending WIC appointment with you?
 

<input type="checkbox"/> Wife	<input type="checkbox"/> Girlfriend	<input type="checkbox"/> Relative
<input type="checkbox"/> Friend	<input type="checkbox"/> Other _____	
  
5. Baby's due date? \_\_\_\_\_
  
6. Do you have other children?
 

<input type="checkbox"/> Yes (number) _____	<input type="checkbox"/> No
---	-----------------------------
  
7. If yes, how were they fed?
 

<input type="checkbox"/> Breastfed	<input type="checkbox"/> Formula fed	<input type="checkbox"/> Mixed
------------------------------------	--------------------------------------	--------------------------------
  
8. Are you currently....
 

<input type="checkbox"/> Working for wages	<input type="checkbox"/> Student	<input type="checkbox"/> Homemaker
<input type="checkbox"/> Self-employed	<input type="checkbox"/> Retired	<input type="checkbox"/> Unable to work
<input type="checkbox"/> Not Employed		
  
9. If you are employed for wages or are self-employed, what kind of work do you do?  
 (Please write in) \_\_\_\_\_
  
10. Plans after baby is born?
 

<input type="checkbox"/> Return to work	<input type="checkbox"/> Return to school	<input type="checkbox"/> Homemaker
<input type="checkbox"/> Other _____		

If returning to work/school, how many weeks after baby is born? \_\_\_\_\_
  
11. What kind of health insurance do you have?
 

<input type="checkbox"/> Medicare	<input type="checkbox"/> MedQuest	<input type="checkbox"/> Kaiser (non-Quest)
<input type="checkbox"/> HMSA (non-Quest)	<input type="checkbox"/> None	
<input type="checkbox"/> Other (write in) _____		

**12. Hispanic or Latino ethnicity?**

- Yes                       No                       Unknown

**13. What is your race and ancestry (check all that apply)?**

- American Indian or Alaska Native
- Asian
- |                                       |  |                                     |
|---------------------------------------|--|-------------------------------------|
| <input type="checkbox"/> Asian Indian | <input type="checkbox"/> Indonesian        | <input type="checkbox"/> Laotian    |
| <input type="checkbox"/> Chinese      | <input type="checkbox"/> Japanese          | <input type="checkbox"/> Thai       |
| <input type="checkbox"/> Cambodian    | <input type="checkbox"/> Korean            | <input type="checkbox"/> Vietnamese |
| <input type="checkbox"/> Filipino     | <input type="checkbox"/> Other Asian _____ |                                     |
- Black or African American
- Native Hawaiian or Pacific Islander
- |                                      |   |
|--------------------------------------|---|
| <input type="checkbox"/> Micronesian | <input type="checkbox"/> Guamanian/Chamorroan         |
| <input type="checkbox"/> Samoan      | <input type="checkbox"/> Hawaiian/Part Hawaiian       |
| <input type="checkbox"/> Marshallese | <input type="checkbox"/> Tongan                       |
| <input type="checkbox"/> Melanesian  | <input type="checkbox"/> Other Pacific Islander _____ |
| <input type="checkbox"/> White       |   |

**APPENDIX H. BACKGROUND INFORMATION FORM FOR MALE PARTNER****Background information form**

- 1. What is your date of birth?** \_\_\_\_\_
- 2. What was the last grade or year of school you completed?**
- |  |   |
|--|---|
| <input type="checkbox"/> 8th Grade or less           | <input type="checkbox"/> Some College or Technical School |
| <input type="checkbox"/> Grades 9 through 11         | <input type="checkbox"/> College Graduate                 |
| <input type="checkbox"/> High School Graduate or GED | <input type="checkbox"/> Other _____                      |
- 3. Are you currently.....**
- |  |                                    |  |
|--|------------------------------------|--|
| <input type="checkbox"/> Married         | <input type="checkbox"/> Divorced  | <input type="checkbox"/> Widowed       |
| <input type="checkbox"/> In relationship | <input type="checkbox"/> Separated | <input type="checkbox"/> Never married |
- 4. Relationship to person attending WIC appointment with you?**
- |                                   |                                    |  |
|-----------------------------------|------------------------------------|--|
| <input type="checkbox"/> Husband  | <input type="checkbox"/> Boyfriend | <input type="checkbox"/> Baby's father |
| <input type="checkbox"/> Relative | <input type="checkbox"/> Friend    | <input type="checkbox"/> Other _____   |
- 5. Baby's due date?** \_\_\_\_\_
- 6. Do you have other children?**
- |   |                             |
|---|-----------------------------|
| <input type="checkbox"/> Yes (number) _____ | <input type="checkbox"/> No |
|---|-----------------------------|
- 7. If yes, how were they fed?**
- |                                    |                                      |                                |
|------------------------------------|--------------------------------------|--------------------------------|
| <input type="checkbox"/> Breastfed | <input type="checkbox"/> Formula fed | <input type="checkbox"/> Mixed |
|------------------------------------|--------------------------------------|--------------------------------|
- 8. Are you currently....**
- |  |                                  |   |
|--|----------------------------------|---|
| <input type="checkbox"/> Working for wages | <input type="checkbox"/> Student | <input type="checkbox"/> Homemaker      |
| <input type="checkbox"/> Self-employed     | <input type="checkbox"/> Retired | <input type="checkbox"/> Unable to work |
| <input type="checkbox"/> Not Employed      |                                  |   |
- 9. If you are employed for wages or are self-employed, what kind of work do you do?**
- (Please write in) \_\_\_\_\_
- 10. Plans after baby is born?**
- |   |   |                                    |
|---|---|------------------------------------|
| <input type="checkbox"/> Return to work | <input type="checkbox"/> Return to school | <input type="checkbox"/> Homemaker |
| <input type="checkbox"/> Other _____    |   |                                    |
- If returning to work/school, how many weeks after baby is born? \_\_\_\_\_
- 11. What kind of health insurance do you have?**
- |   |                                   |   |
|---|-----------------------------------|---|
| <input type="checkbox"/> Medicare               | <input type="checkbox"/> MedQuest | <input type="checkbox"/> Kaiser (non-Quest) |
| <input type="checkbox"/> HMSA (non-Quest)       | <input type="checkbox"/> None     |   |
| <input type="checkbox"/> Other (write in) _____ |                                   |   |

**12. Hispanic or Latino ethnicity?**

- Yes                       No                       Unknown

**13. What is your race and ancestry (check all that apply)?**

- American Indian or Alaska Native
- Asian
- |                                       |  |                                     |
|---------------------------------------|--|-------------------------------------|
| <input type="checkbox"/> Asian Indian | <input type="checkbox"/> Indonesian        | <input type="checkbox"/> Laotian    |
| <input type="checkbox"/> Chinese      | <input type="checkbox"/> Japanese          | <input type="checkbox"/> Thai       |
| <input type="checkbox"/> Cambodian    | <input type="checkbox"/> Korean            | <input type="checkbox"/> Vietnamese |
| <input type="checkbox"/> Filipino     | <input type="checkbox"/> Other Asian _____ |                                     |
- Black or African American
- Native Hawaiian or Pacific Islander
- |                                      |   |
|--------------------------------------|---|
| <input type="checkbox"/> Micronesian | <input type="checkbox"/> Guamanian/Chamorroan         |
| <input type="checkbox"/> Samoan      | <input type="checkbox"/> Hawaiian/Part Hawaiian       |
| <input type="checkbox"/> Marshallese | <input type="checkbox"/> Tongan                       |
| <input type="checkbox"/> Melanesian  | <input type="checkbox"/> Other Pacific Islander _____ |
| <input type="checkbox"/> White       |   |

**APPENDIX I. INFANT FEEDING PLAN FOR MOM****The Infant Feeding Plan**

- 1. What method do you plan to use to feed your new baby in the hospital?**
  - Breastfeeding only
  - Formula feeding only
  - Both breast and formula feed
  - Don't know
  
- 2. What method do you plan to use to feed your new baby in the first few weeks?**
  - Breastfeeding only
  - Formula feeding only
  - Both breast and formula feed
  - Don't know
  
- 3. When did you decide how to feed your baby?**
  - Before I got pregnant
  - First 13 weeks of pregnancy
  - 13 to 40 weeks of pregnancy
  - Don't know
  
- 4. Have you discussed the different ways of feeding your baby with your partner?**
  - Yes
  - No
  - Discuss in the future

**APPENDIX J. INFANT FEEDING PLAN FOR MALE PARTNER****The Infant Feeding Plan**

- 1. What method do you plan to use to feed your new baby in the hospital?**
  - Breastfeeding only
  - Formula feeding only
  - Both breast and formula feed
  - Don't know
  
- 2. What method do you plan to use to feed your new baby in the first few weeks?**
  - Breastfeeding only
  - Formula feeding only
  - Both breast and formula feed
  - Don't know
  
- 3. Do you know when the baby's mother decided how to feed her baby?**
  - Before she got pregnant
  - First 13 weeks of pregnancy
  - 13 to 40 weeks of pregnancy
  - Don't know
  
- 4. Have you discussed the different ways of feeding the baby with the baby's mother?**
  - Yes
  - No
  - Discuss in the future

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