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Social Contexts of Infant Feeding and Infant Feeding Decisions

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Abstract

Background: Infant feeding takes place within a network of social relationships. However, the social context in which infant feeding advice is received remains underresearched.

Objective: The objective of this study was to evaluate the social contexts of infant feeding by examining individual and relationship characteristics of mothers and network members associated with advice to exclusively breastfeed, exclusively formula feed, or use a combination of breast milk and formula.

Methods: Information about 287 network members was reported by 80 low-income mothers during a one-time survey. Characteristics of relationships associated with mothers receiving advice (exclusively breastfeed/formula feed, combination feed) from each network member were identified using 2-level logistic regression analyses.

Results: Mothers had greater odds of receiving advice to exclusively breastfeed from network members who help make feeding decisions (odds ratio [OR], 2.44; 95% confidence interval [CI], 1.35–4.42), exclusively breastfed their own child or children (OR, 6.99; 95% CI, 2.96–16.51), and were health care providers (OR, 4.82; 95% CI, 1.70–13.67). Mothers had greater odds of receiving advice to breastfeed in combination with formula from network members who provided emotional support (OR, 2.45; 95% CI, 1.31–4.55), combination fed their own child or children (OR, 4.85; 95% CI, 1.80–13.05), and had an opinion that was important to the mother (OR, 2.67; 95% CI, 1.13–6.33). Mothers had greater odds of receiving advice to exclusively formula feed from network members who exclusively formula fed their own child or children (OR, 2.23; 95% CI, 1.07–4.66) than those who did not.

Conclusion: Social relationship characteristics and network members' infant feeding experiences may have implications for the advice new mothers receive. Future research should investigate social contexts of infant feeding longitudinally to inform interventions.

Keywords: behaviors, breastfeeding, breastfeeding support

Well Established — Social support from family, friends, and health professionals has implications for breastfeeding. Other characteristics of social relationships in infant feeding social contexts, however, are less understood.

Newly Expressed — The type and characteristics of social relationships and personal infant feeding experiences of the support network members were associated with the type of feeding advice received by mothers. Interpersonal relationships represent underexplored areas in infant feeding research.

Background

Evidence supports the benefits of breastfeeding for infants by providing optimal nutrients for development and enhancing immunologic defenses^{1,2} and for mothers by decreasing the risks of some cancers and chronic diseases later in life.¹ As such, the World Health Organization, Centers for Disease Control and Prevention, and the American Academy of Pediatrics recommend that infants be exclusively breastfed for 6 months with continued breastfeeding through the first year or two.¹

Despite the consensus on the benefits of breastfeeding among these public health organizations, current breastfeeding rates continue to fall short of the recommended levels. Globally, less than 40% of infants are exclusively breastfed for 6 months.³ While breastfeeding rates have improved in recent years in the United States, where the present study took place, 49% were breastfeeding at 6 months and 27% at 12 months among infants born in 2011.⁴ Moreover, cultural and socioeconomic disparities exist in the United State such that mothers with low socioeconomic status are less likely to initiate and exclusively breastfeed their infants.⁵⁻⁹ The National Center for Health Statistics described a significant difference in breastfeeding rates based on level of poverty between 1999 and 2006. During that time, the proportion of infants in the United States who were ever breastfed was lower among families with lower income (57%) compared with higher income status (74%).⁹ Also, within income groups, the breastfeeding rates for black infants were significantly lower than those for white infants.⁹ Improving breastfeeding outcomes, especially among low-income populations, is a national and global public health priority.¹⁰⁻¹²

The disparity described above may partly be due to differences in sociocultural contexts. Improved understanding of modifiable factors that have implications for breastfeeding behavior, while considering the social contexts in which mothers are situated, is critical for the development of effective interventions that support breastfeeding mothers. Within a social network framework, a mother's "social network" or the web of social ties that surrounds her¹³ is postulated to give rise to the functional characteristics of networks, including social support and social influence, which, in turn, influence her beliefs, attitudes, and behaviors.¹⁴ Previous studies have shown the importance of emotional support or trusting relationships in meeting mothers' needs^{15, 16} and helping with decision making.^{16, 17} The positive effects of support from health care professionals,¹⁸ peers,¹⁹ and the infant's father^{20, 21} on breastfeeding have been well documented and have led to the development of interventions to enhance breastfeeding-related support for new mothers.²⁰⁻²² While a recent review found that breastfeeding support interventions generally have a positive impact on breastfeeding exclusivity and duration, the size of treatment effects varied considerably across studies.²²

Social influence, a functional characteristic of social networks,²³ has been studied to a lesser extent than social support. The provision or receipt of advice is a direct form of social influence, which has been shown to motivate individuals to change behaviors such as exercise and healthy eating,²⁴ and is a promising area to explore in behavioral research. New mothers frequently cite advice from friends and family as a key influence on decisions about infant feeding,²⁵⁻²⁷ and advice given by health professionals has been found to play a role in breastfeeding outcomes.^{18, 28} Previous studies showed the importance of mothers' perceptions about social norms in association with breastfeeding.²⁹ However, lit-

tle is known about the characteristics of the mother and her network members (e.g., age, marital status, ethnicity, prior infant feeding experiences) or characteristics of the social relationships (e.g., mothers receiving support, receiving opinions perceived to be important) that may be associated with the receipt of infant feeding advice and may greatly inform future research and practice.

To begin to understand the context of social influences in relation to infant feeding, we explored individual and social relationship characteristics associated with the receipt of infant feeding advice among low-income mothers. The demographic characteristics of the mothers and network members are nonmodifiable factors, yet understanding their associations with feeding advice can inform practice by identifying members of mothers' social networks who could be targeted in interventions. By exploring social relationship characteristics, we may identify relationship factors associated with the presence of feeding advice that could potentially be intervened upon to enhance current intervention approaches.

The primary objective of this study was to evaluate the social contexts of infant feeding advice provision: advice to exclusively breastfeed, exclusively formula feed, and feed using a combination of breast milk and formula. Characteristics of mothers (e.g., marital status, race), their infant feeding support network members (e.g., members' own feeding experience), and mothers' relationships with their network members (e.g., receiving help with decision making about infant feeding, receiving opinions perceived to be important) associated with the receipt of infant feeding advice were identified using a social network framework and obtaining information about each network member from participating mothers.

Methods

This was a cross-sectional study in which low-income, urban mothers in the southeastern United States were interviewed once regarding their infant feeding social support networks along with their feeding practices and demographic background.

Participants and Procedures

Participants were mothers recruited through the Memphis (Shelby County, Tennessee) Women, Infants, and Children clinics and a hospital-based outpatient general pediatric clinic primarily serving low-income children with government-funded public insurance, such as Medicaid, between September 2011 and June 2012. Eligible mothers were at least 18 years old, were fluent in English, and had an infant aged 0 to 12 months. Participants were identified by clinic staff and approached by a trained interviewer. Mothers were consented, interviewed in a private room that took between

20 and 45 minutes, and compensated with a \$20.00 retail store gift card. The research was approved by the Institutional Review Boards of the University of Memphis and the University of Tennessee Health Science Center.

Measures

Characteristics of support networks and social relationships. Two questions were used to enumerate the members of mothers' infant care support networks. Mothers first listed "persons who have been important [to her] during the past year such as family, friends, and health professionals." Second, mothers listed those who are "important in daily life, especially in caring for and feeding the baby." After creating a list of infant care support network members, 3 questions about infant feeding advice were asked: "Who has told you that you should [exclusively breastfeed/use a combination of breastfeeding and formula feeding/exclusively formula feed] your baby?" For each question, selected members were given a score of "1" as a provider of advice, whereas those who were not selected were given a "0." Mothers could indicate receiving more than one type of advice from each network member. These scores were used as network member-level outcomes. Mothers further indicated whether each member provides emotional support, helps make decisions about infant feeding, and whether his or her opinion is important to her (1 = yes, 0 = no). Respondents reported the characteristics of each network member: relationship to the respondent (e.g., mother, spouse/partner, health care provider), age, sex, place of residence (1 = lives with respondent, 0 = does not live with respondent), frequency of contact (1 = at least several days per week, 0 = less than several days per week), whether he or she is a parent, and the feeding method the network member used with his or her own children ("Who has told you that his/her own child or children were [exclusively breastfed/breastfed in combination with formula/ exclusively formula fed]?" 3 indicator variables were created for the 3 types).

Characteristics of the participants. Maternal characteristics (e.g., age, race, employment status, marital status, and education) previously shown to be important in breastfeeding research (e.g., initiation, duration, social support) were considered in the analyses.^{6,30} Demographic characteristics of the participants were assessed through self-report. Age was treated as a continuous variable. Because most participants identified themselves as black or African American (80% vs 14% white and 6% other), this variable was dichotomized (1 = black/African American, 0 = not black/African American). Other dichotomized variables include education (1 = at least high school diploma or equivalent general education development [GED] diploma, 0 = less than HS diploma or GED), employment (1 = working full- or part-time, 0 = not working), and marital status (1 = married or living with partner, 0 = not married or not living with partner). The mother's social

network size (i.e., the number of people enumerated), measured as a continuous variable, was also considered a covariate. A variable indicating whether the mother ever breastfed her baby was created based on the question, "Did you ever breastfeed your baby or feed him/her your pumped milk?" (1 = yes, 0 = no).

Analyses

Characteristics of mothers and their infant care support network members were examined with descriptive statistics using SPSS version 22 (SPSS, Inc., an IBM Company, Chicago, IL, USA). The outcomes for the main analysis were whether mothers received advice to exclusively breastfeed, breastfeed in combination with formula, or exclusively formula feed (3 separate models) from each network member. Thus, network member (N = 287) represents the unit of analyses. Characteristics of network members and relationships were considered independent variables. Network member characteristics considered include relationship to the mother (e.g., health care provider, mother, spouse/partner), age, sex, residence, if he or she is a parent, frequency of contact with the mother, and how his or her child was fed. Relationship characteristics considered include if the network member is someone whose opinion the mother considers important, from whom the mother received emotional support, and who helps make decisions about feeding the baby. Additional participant-level covariates considered included the mother's network size, age, race, marital status, and education. Significance of the relationship between each of the participant- and network member-level variables and each of the 3 outcomes was examined with bivariate odds ratios (ORs) and 95% confidence intervals (CIs). Two-level logistic regression models accounted for the clustering of network members (level 1) in each participant's network (level 2) using HLM version 7 (SSI Inc., Skokie, Illinois, USA). First, participant- and network member-level variables that were associated at $P < .10$ were entered to build a full multivariate model for each outcome. Three final models were derived using backward stepwise selection to remove nonsignificant social relationship variables controlling for significant demographic covariates. Associations were considered significant if $P < .05$.

A post hoc analysis was conducted using a multivariate logistic regression model to evaluate whether receiving advice was associated with ever breastfeeding. The full model included the 3 advice variables (indicator variables showing the mother received advice from at least 1 network member to exclusively breastfeed, exclusively formula feed, or combination feed), social network size (to control for the differing chances of receiving advice within the network), and other covariates significantly associated with the outcome at $P < .10$ in bivariate analysis. Variables not significantly associated with the outcome ($P < .05$) were removed from the full model using a backward selection procedure to derive a final model. While a longitudinal model is most appropriate for examining

Table 1. Participant Characteristics ($n = 80$)

Characteristic	Mean (SD) or Frequency (n)	Range or %
Age, y	24.6 (5.5)	18-40
Race		
African American	64	80.0
Not African American ^a	16	20.0
Education		
Less than high school	11	13.8
At least high school diploma or equivalent GED	69	86.3
Employment status		
Employed full- or part-time	26	32.5
Not employed full- or part-time	54	67.5
Marital status		
Married/Single and living with partner	28	35.0
Not married/Not living with partner ^b	52	65.0
Received advice to ^c		
Breastfeed exclusively	39	48.8
Breastfeed in combination with formula	25	31.1
Formula feed exclusively	20	25.0
Primiparous (first-time mother)	64	80.0
Initiated breastfeeding	53	66.3

GED, general education development.

a. Not African American category includes white (13.8%), and response of "other" includes African (1.3%), Asian (1.3%), and Hispanic (3.8%).

b. Not married/Not living with partner category includes widowed (1.3%), divorced (1.3%), and single, never married (62.5%).

c. Twenty-two mothers received more than one type of infant feeding advice.

the impact of social influences on breastfeeding outcomes, this cross-sectional analysis was conducted to shed light on potential associations between the receipt of infant feeding advice and breastfeeding behavior to inform future research.

Results

Characteristics of the Participants and Infant Care Support Network Members

A total of 287 network members were identified by 80 mothers, providing 287 relationships to include in the analyses. Participant characteristics are presented in Table 1. Respondents ranged in age from 18 to 40 years (median, 23.0; mean \pm SD, 24.6 \pm 5.5 years). Most participants were African American (80%), were first-time mothers (80%), graduated from high school or received a GED (86%), were not currently working either full- or part-time (68%), received government-funded public health insurance such as Medicaid (88%), and were not currently married or living with a partner (65%). All infants were full-term with the exception of one born at 23 weeks whose mother breastfed. Most mothers received at least one type of infant feeding advice from network members (74%).

The mean \pm SD size of mothers' support networks was 3.6 \pm 1.96 members (range, 1-11; median, 3.0). Of the 287 members, 23% were the participant's mother, 18.5% were the participant's spouse/partner, and 6.3% were health care providers. Twenty-two percent of network members provided

advice to exclusively breastfeed, 16.0% advised combination feeding, and 13.2% advised to exclusively formula feed (see Table 2). In total, 127 members were identified as providers of at least one type of feeding advice, 19 for both exclusive breastfeeding and combination feeding, and 1 for both exclusive formula feeding and combination feeding.

Factors Associated with Infant Feeding Advice

Results of the 2-level logistic regression models showing the characteristics of participants, network members, and their relationships associated with each type of infant feeding advice are presented as ORs, along with 95% CIs, in Table 3. Results of the bivariate analyses indicated that age, race, and marital status of the participants were significantly associated with at least one of the outcome variables. Controlling for these covariates and social network size, mothers' odds of receiving advice to exclusively breastfeed were greater if the network members helped with feeding decisions (OR, 2.44; 95% CI, 1.35–4.42), were health care providers (OR, 4.82; 95% CI, 1.70–13.67), or were reported to have exclusively breastfed their own children (OR, 6.99; 95% CI, 2.96–16.51), compared with those who do not help with decision making, were not health professionals, or were not reported to have exclusively breastfed, respectively. The odds of receiving exclusive breastfeeding advice was significantly lower within the networks of mothers who are married or currently living with a partner (OR, 0.21; 95% CI, 0.09–0.52), compared with those who are single, widowed, separated, or divorced.

Table 2. Characteristics of Infant Care Support Network Members ($N = 287$)^a

	Frequency	%
Network members who		
Provide exclusive breastfeeding advice	63	22.0
Provide combination feeding advice	46	16.0
Provide exclusive formula feeding advice	38	13.2
Help make decisions about feeding the baby	98	34.1
Provide an opinion that is important to the participant	165	57.5
Provide emotional support to the participant	164	57.1
Exclusively breastfed their own child or children	30	10.5
Fed their own child or children using a combination of breastfeeding and formula feeding	21	7.3
Exclusively formula fed their own child or children	53	18.5

a. Twenty network members provided more than one kind of infant feeding advice.

The odds of receiving advice to breastfeed in combination with formula from network members who provided emotional support (OR, 2.45; 95% CI, 1.31–4.55) and whose opinion is important to the mother (OR, 2.67; 95% CI, 1.13–6.33) were more than 2 times higher than from members who do not provide emotional support and whose opinion is not considered particularly important, respectively. Mothers had nearly 5 times the odds of receiving advice to use a combination method from members who used a combination method to feed their own child or children (OR, 4.85; 95% CI, 1.80–13.05) compared with those who did not.

Mothers had more than 2 times the odds of receiving advice to exclusively formula feed from members whose child or children were exclusively formula fed (OR, 2.23; 95% CI, 1.07–4.66) than from those who did not. Furthermore, the odds of this type of advice occurring within the networks of African American mothers was more than 8 times higher compared with the networks of non-African American mothers (OR, 8.28; 95% CI, 2.33–29.46).

Fifty-three mothers (66%) reported ever breastfeeding. Controlling for the respondent characteristics significantly associated with this outcome (i.e., completing high school or having a GED, being full- or part-time employed, identifying as African American) and social network size, receiving advice to breastfeed in combination with formula was associated with ever breastfeeding (OR, 7.31; 95% CI, 1.63–32.84) (see Table 4).

Discussion

The primary aim of this study was to evaluate the social contexts of infant feeding by examining the individual and social relationship characteristics of mothers and their support network members associated with mothers receiving 3 types of infant feeding advice to exclusively breastfeed, exclusively formula feed, or breastfeed in combination with formula. Findings showed that some characteristics of mothers,

support network members, and social relationships were associated with mothers receiving different types of advice. In this study, mothers' infant care support networks were relatively small in size, averaging between 3 and 4 members. Given the way network members were enumerated, these networks likely represent a subset of mothers' overall social support networks specifically involved in infant care. In total, 73.7% of mothers received infant feeding advice, indicating the presence of social influence within these networks.

Consistent with previous literature showing that a mother's mother tends to provide advice based on her own infant feeding experience,^{31, 32} the method the network member used to feed his or her own child or children was significantly associated with the type of advice received in this study. This suggests the importance of considering network members' past experiences that may influence the mother's perceptions of social norms. The provision of personal, experience-based advice may reflect explicit attempts of social network members to encourage a person to adopt or adhere³³ to an infant feeding method that may be appropriate based on his or her own experience or the community norms. If a network member has formula feeding experience and a mother wishes to breastfeed, interventions may need to reach beyond the mother to her network members to influence such experience-based norms. While the role of social norms in infant feeding practices has been investigated,^{29, 34} how social norms influence infant feeding, for example, through a direct form of social influence such as advice provision has not been well documented. Our results suggest this pathway is plausible and should be further explored in longitudinal studies.

In this study, exclusive formula feeding advice was more likely to be reported within the networks of African American mothers compared with non-African Americans. Family and friends may discourage breastfeeding if it is not culturally acceptable or does not fit with social norms.¹² As reflected in the breastfeeding initiation disparity between African American and white mothers,⁹ formula feeding may be

Table 3. Multivariate Models Showing the Factors Associated with 3 Types of Infant Feeding Advice

	Exclusive Breastfeeding Advice		Combination Feeding Advice		Exclusive Formula Feeding Advice	
	OR	95% CI	OR	95% CI	OR	95% CI
Intercept	0.89	0.08-9.39	0.12	0.01-2.25	0.01	0.001-0.24
Participant-level variables (n = 80)						
Network size	0.99	0.85-1.16	0.97	0.85-1.11	1.13	0.88-1.44
Age	0.97	0.90-1.04	0.97	0.87-1.08	0.99	0.90-1.09
Black/AA race ^b	0.43	0.14-1.28	0.80	0.23-2.71	8.28 ^a	2.33-29.46 ^a
Married/living with partner ^c	0.21 ^a	0.09-0.52 ^a	1.47	0.39-5.51	1.32	0.51-3.37
Network member-level variables (N = 287)						
Health care provider	4.82a	1.70-13.67 ^a				
Provide emotional support to the participant			2.45a	1.31-4.55 ^a		
Help make decisions about feeding the baby	2.44 ^a	1.35-4.42 ^a				
Exclusively breastfed their own child or children	6.99 ^a	2.96-16.51 ^a				
Fed their own child or children using a combination of breast and formula feeding			4.85 ^a	1.80-13.05 ^a		
Exclusively formula fed their own child or children				2.23 ^a	1.07-4.66 ^a	
Opinion is important to the participant			2.67 ^a	1.13-6.33 ^a		

AA, African American; CI, confidence interval; OR, odds ratio.

a. Significant findings ($P < .05$).

b. Versus any other race.

c. Versus any other marital status.

the dominant norm within the African American culture, potentially leading to mothers receiving such advice from network members to fit the cultural norm. Race, ethnicity, and social norms in infant feeding choices have been shown to affect infant feeding outcomes among minorities.^{6, 18} Despite a lack of racial variability, this study elucidated that the type of advice provided may follow trends of cultural norms, suggesting that social and cultural norms may manifest in the form of direct social influence. Therefore, it is important to consider both direct (e.g., feeding advice) and indirect forms of social influence (e.g., social norms) and how they can be intervened upon when developing interventions to facilitate optimal infant feeding.

Characteristics of the support network members may be associated with the type of advice provided. Mothers were likely to report receiving advice to exclusively breastfeed from health care providers and those who help make infant feeding decisions, which likely reflects the efforts and breastfeeding recommendations of leading health organizations.¹ These findings may be an indication that the recommendations are being followed by health care providers. Because some mothers may perceive recommendations to exclusively breastfeed as overly intrusive or may feel pressured and develop resistance to the recommendation,³³ strategies to minimize such perceived pressure should be carefully considered when communicating feeding recommendations.

Qualities of social relationships mothers have with their support network members also appear to have implications

on the types of advice they receive. Network members from whom mothers receive emotional support and opinions perceived as important were more likely to be listed by the mother as a provider of advice to breastfeed in combination with formula than those who were not identified to play such social roles. Studies have shown that "empathic understanding" or providing support that meets the mother's needs and values¹³ may be important in reducing feelings of shame or judgment in mothers' overall feeding experiences.³⁵ When mothers face feeding challenges, stress, or trouble, support providers may suggest combination feeding as an answer, especially if that particular method has worked for their family. Those who provided advice to combination feed in this current study may be trying to respond to mothers' emotional needs. While breastfeeding in combination with formula has previously been demonstrated to result in shorter breastfeeding duration,³⁶ in our analyses, controlling for sociodemographic factors and network size, advice to combination feed was associated with ever breastfeeding. Because our data do not provide information on when the advice was provided (e.g., before or after the birth), there are several potential interpretations to this finding. For example, receiving this type of advice may facilitate initial breastfeeding by meeting mothers' support needs,^{37, 38} or alternatively, mothers may initiate because this type of advice was more likely to be provided by those who mothers emotionally connect to and trust. It may also be that those who initiated breastfeeding may be more likely to receive advice to combination feed

Table 4. Multivariate Model Showing the Factors Associated with Breastfeeding Initiation

	Full Model		Final Model	
	OR	95% CI	OR	95% CI
Network size	1.04	0.77-1.40	1.01	0.76-1.33
Black/African American race ^b	0.15	0.22-1.06	0.14 ^a	0.02-0.93 ^a
At least high school diploma or GED ^c	12.34 ^a	1.94-78.67 ^a	12.46 ^a	2.02-76.98 ^a
Currently working full- or part-time ^d	5.76 ^a	1.33-24.89 ^a	5.61 ^a	1.34-23.58 ^a
At least one network member told the mother she should exclusively breastfeed ^e	1.55	0.46-5.26		
At least one network member told the mother she should use a combination method ^f	5.85 ^a	1.26-27.09 ^a	7.31 ^a	1.63-32.84 ^a
At least one network member told the mother she should exclusively formula feed ^g	0.47	0.12-1.76		

CI, confidence interval; GED, general education development; OR, odds ratio.

a. Significant findings ($P < .05$).

b. Versus any other race.

c. Versus less than high school or GED education.

d. Versus any other employment status.

e. Versus not having at least one network member telling the mother she should exclusively breastfeed.

f. Versus not having at least one network member telling the mother she should use a combination of breastfeeding and formula feeding.

g. Versus not having at least one network member telling the mother she should exclusively formula feed.

than not receive such advice, especially if they encountered challenges. To gain further understanding, the potential role of receiving infant feeding advice in mothers' feeding practices should be investigated in future longitudinal research.

The ever breastfed rate in this current study (66%) was comparable to the rate of 65% for African American mothers in United States.⁹ This rate, however, is well below the *Healthy People 2020* overall goal of 81.9%.¹¹ As literature indicates and is shown in this study, African American mothers may be situated in sociocultural norms to formula feed rather than breastfeed.^{34, 39} Understanding the characteristics of social relationships associated with receiving different types of feeding advice within this cultural context may help identify strategies to alter advice provided and to develop breastfeeding interventions that build on existing support networks. For example, moving beyond the typical intervention with partners^{40, 41} and health care providers,^{42, 43} as well as identifying key individuals based on the characteristics of social relationships such as those who help with feeding decision making or whose opinions are important to the mother, may help us identify important people to be included in future interventions. To address breastfeeding disparities and promote optimal nutrition for all infants, it is important to consider sociocultural norms and relationship characteristics in interventions. The roles of social influence and sociocultural norms deserve additional attention and should be further investigated in longitudinal studies.

Limitations

The majority of our sample was low-income, ethnic minority women residing in the southeastern United States. Although

we intended to obtain a sample from a hard-to-reach and understudied population, our findings may not be generalized to other regions. Data were self-reported, introducing potential for social desirability or recall biases. The ever breastfeeding measure did not consider reasons for not initiating or ever breastfeeding this child such as medical conditions. Social network information was collected from individuals; thus, analysis is based solely on the mother's perception of relationships and was not verified by others in the network. The variable regarding network members who help the mother with infant feeding decisions was created to indicate instrumental support, but by receiving help in making decisions, mothers could also be receiving advice. This was a cross-sectional study, and causal associations between advice provision and ever breastfeeding cannot be determined. Future studies would benefit from a longitudinal design and an investigation into how infant feeding advice relates to important breastfeeding outcomes such as initiation and duration.

Conclusion

This study evaluated social contexts of infant feeding. Characteristics of social support network members and the relationships mothers have with them were associated with types of feeding advice mothers received. This study highlighted the importance of considering an overall social context beyond mothers' personal beliefs and attitudes as network members tended to provide advice consistent with their own infant feeding experience. African American mothers were more likely to receive advice to exclusively formula feed from network members than their counterparts. Advice to

combination feed tended to come from network members emotionally close to the mother, suggesting the importance of considering relationship characteristics when evaluating social influence. All together, these findings suggest the importance of considering social contexts when aiming to facilitate breastfeeding, especially among ethnic minority or low-income populations who may be exposed to norms that are not consistent with clinical recommendations. Efforts to facilitate optimal infant feeding practices should move beyond the mother and consider the characteristics of individuals, social support network members, social relationships, and the overall social context.

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References

1. American Academy of Pediatrics. Breastfeeding and the use of human milk. *Pediatrics*. 2012;129(3):e827-e841.
2. Duijts L, Jaddoe VW, Hofman A, Moll HA. Prolonged and exclusive breastfeeding reduces the risk of infectious diseases in infancy. *Pediatrics*. 2010;126(e18):e25.
3. UNICEF. Infant and young child feeding global database. Updated 2014. <http://data.unicef.org/nutrition/iycf?q=printme> (December 12, 2014).
4. Centers for Disease Control and Prevention (CDC). *Breastfeeding Report Card: United States 2014*. Atlanta, GA: CDC; 2014.
5. Guttman N, Zimmerman DR. Low-income mothers' views on breastfeeding. *Soc Sci Med*. 2000;50:1457-1473.
6. Chin AC, Myers L, Magnus JH. Race, education, and breastfeeding initiation in Louisiana, 2000-2004. *J Hum Lact*. 2008;24(2):175-185.
7. Milligan RA, Pugh LC, Bronner YL, Spatz DL, Brown LP. Breastfeeding duration among low income women. *J Midwifery Womens Health*. 2000;45(3):246-252.
8. Ryan AS, Zhou W. Lower breastfeeding rates persist among the special supplemental nutrition program for women, infants, and children participants, 1978-2003. *Pediatrics*. 2006;117(4):1136-1146.
9. McDowell MM, Wang C, Kennedy-Stephenson J. Breastfeeding in the United States: Findings from the National Health and Nutrition Examination Surveys, 1999-2006. *NCHS Data Briefs*. 2008;5:1-8.
10. World Health Organization. Infant and young child feeding. Updated 2014. <http://www.who.int/mediacentre/factsheets/fs342/en/#> (October 16, 2014).
11. US Department of Health and Human Services. Maternal, infant, and child health. Updated 2012. <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=26> (March 21, 2012).
12. US Department of Health and Human Services. *The Surgeon General's Call to Action to Support Breastfeeding*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; 2011.
13. Heaney CA, Israel BA. Social networks and social support. In: Glanz K, Rimer BK, Viswanath K, eds. *Health Behavior and Health Education: Theory, Research, and Practice*. 4th ed. San Francisco, CA: Jossey-Bass; 2008:189-210.
14. Valente TW. Network interventions. *Science*. 2012;337: 49-53.
15. Hewat RJ, Ellis DJ. Similarities and difference between women who breastfeed for short and long duration. *Midwifery*. 1986;2(1):37-43.
16. Matich JR, Sims LS. A comparison of social support variables between women who intend to breast or bottle feed. *Soc Sci Med*. 1992;34(8):919-927.
17. Rempel LA, Rempel JK. Partner influence on health behavior decision-making: Increasing breastfeeding duration. *J Soc Pers Relat*. 2004;21(1):92-111.
18. Ma P, Magnus JH. Exploring the concept of positive deviance related to breastfeeding initiation in black and white WIC enrolled first time mothers. *Matern Child Health J*. 2012;16:1583-1593.
19. Chapman DJ, Morel K, Anderson AK, Damio G, Perez-Escamilla R. Breastfeeding peer counseling: From efficacy through scale-up. *J Hum Lact*. 2010;26(3):314-326.
20. Ingram J, Johnson D. A feasibility study of an intervention to enhance family support for breast feeding in a deprived area in Bristol, UK. *Midwifery*. 2004;20:367-379.
21. Pisacane A, Continisio GI, Aldinucci M, D'Amora S, Continisio P. A controlled trial of the father's role in breastfeeding promotion. *Pediatrics*. 2005;116(4):e494-e498.
22. Renfrew MJ, McCormick FM, Wade A, Quinn B, Dowswell T. Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database Syst Rev*. 2012;(5):CD001141.
23. Berkman LF, Glass T. Social integration, social networks, social support, and health. In: Berman LF, Kawachi I, eds. *Social Epidemiology*. New York, NY: Oxford University Press; 2000.
24. Ashida S, Wilkinson AV, Koehly LM. Social influence and motivation to change health behaviors among Mexican origin adults: Implications for diet and physical activity. *Am J Health Promot*. 2012;26(3):176-179.
25. Rossman B. Breastfeeding peer counselors in the United States: Helping to build a culture and tradition of breastfeeding. *J Midwifery Womens Health*. 2007;52(6):631-637.
26. Arora S, McJunkin C, Wehrer J, Kuhn P. Major factors influencing breastfeeding rates: Mother's perception of father's attitude and milk supply. *Pediatrics*. 2000;106:e67-e71.
27. Wright CM, Parkinson KN, Drewett RF. Why are babies weaned early? Data from a prospective population based cohort study. *Arch Dis Child*. 2004;89(9):813-816.

28. Henderson J, Redshaw M. Midwifery factors associated with successful breastfeeding. *Child*. 2011;37(5):744-753.
29. Swanson V, Power KG. Initiation and continuation of breastfeeding: Theory of planned behaviour. *J Adv Nurs*. 2005;50(3):272-282.
30. Baranowski T, Bee DE, Rassin DK, et al. Social support, social influence, ethnicity and the breastfeeding decision. *Soc Sci Med*. 1983;17(21):1599-1611.
31. Reid J, Schmied V, Beale B. 'I only give advice if I'm asked': Examining the grandmother's potential to influence infant feeding decisions and parenting practices of new mothers. *Women Birth*. 2010;23(2):74-80.
32. Meyerink RO, Marquis GS. Breastfeeding initiation and duration among low-income women in Alabama: The importance of personal and familial experiences in making infant-feeding choices. *J Hum Lact*. 2002;18(1):38-45.
33. Thoits PA. Mechanisms linking social ties and support to physical and mental health. *J Health Soc Behav*. 2011;52(2):145-161.
34. Kaufman L, Deenadayalan S, Karpati A. Breastfeeding ambivalence among low-income African American and Puerto Rican women in north and central Brooklyn. *Matern Child Health J*. 2010;14:696-704.
35. Thomson G, Ebisch-Burton K, Flacking R. Shame if you do—shame if you don't: Women's experiences of infant feeding. *Matern Child Nutr*. 2015;11(1):33-46.
36. Holmes AV, Auinger P, Howard CR. Combination feeding of breastmilk and formula: Evidence for shorter breast-feeding from the National Health and Nutrition Examination Survey. *J Pediatr*. 2011;159(2):186-191.
37. Odom EC, Li R, Scanlon KS, Perrine CG, Grummer-Strawn L. Reasons for earlier than desired cessation of breastfeeding. *Pediatrics*. 2013;131:e726-e732.
38. Li R, Fein SB, Chen J, Grummer-Strawn LM. Why mothers stop breastfeeding: Mothers' self-reported reasons for stopping during the first year. *Pediatrics*. 2008;122(suppl 2):S69-S76.
39. Hedberg IC. Barriers to breastfeeding in the WIC population. *Matern Child Health Nurs*. 2013;38(4):244-249.
40. Maycock B, Binns CW, Dhaliwal S, et al. Education and support for fathers improves breastfeeding rates: A randomized controlled trial. *J Hum Lact*. 2013;29(4):484-490.
41. Mitchell-Box KM, Braun KL. Impact of male-partner-focused interventions on breastfeeding initiation, exclusivity, and continuation. *J Hum Lact*. 2013;29(4):473-479.
42. Taveras EM, Capra AM, Braveman PA, Jensvold NG, Escobar GJ, Lieu TA. Clinician support and psychosocial risk factors associated with breastfeeding discontinuation. *Pediatrics*. 2003;112(1):108-115.
43. Chung M, Raman G, Trikalinos T, Lau J, Ip S. Interventions in primary care to promote breastfeeding: An evidence review for the U.S. Preventive Services Task Force. *Ann Intern Med*. 2008;149(8):565-582.