

# A Means-End Analysis of Mothers' Infant Feeding Choices

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*In this research, the authors focus on the choice of an infant feeding method as a public policy issue and present the results of a qualitative study of mothers' motivations to initiate and terminate breastfeeding. Means-end theory provides a framework for understanding mothers' motivations, and the authors interview 73 mothers using a qualitative technique called "laddering." The results of this study could help improve promotional campaigns and training programs by reinforcing the benefits of breastfeeding. This may encourage more mothers to breastfeed, as well as reinforce the efforts of women already breastfeeding to continue during this stressful and demanding time. Marketing strategies and public policy programs must be directed toward preventing premature discontinuation that deprives many infants of the full benefits of breastfeeding.*

There is no finer investment for any community than putting milk into babies. Healthy citizens are the greatest asset any country can have.

—Winston Churchill, 1943

Scientific evidence overwhelmingly indicates that breastfed babies are healthier than those nourished by bottle. Ironically, the first consumption decision in a consumer's life is made by someone other than the actual consumer, typically, the consumer's mother. That first important decision to breastfeed or bottlefeed has long-term implications for the infant's physical and emotional health. Therefore, it is in the public interest to encourage the practice of breastfeeding.

The marketers and policymakers charged with the responsibility of increasing the rates of initiation and duration of breastfeeding continually are seeking novel solutions to effect social change. In this article, we enlist means-end theory (Gutman 1982) to offer a fresh perspective on mothers' motives to initiate and terminate breastfeeding. Means-end theory and the corresponding "laddering" methodology are accepted widely in the academic community (Peter and Olson 1994) and have an impressive track record in the commercial sector, in which they often are used to generate message strategy themes for promotional campaigns. Our research has two goals. First, we examine infant feeding as a social marketing issue and describe how to overcome the conceptual limitations of previous research on infant feeding choices. Second, we present an empirical study of mothers' decisions to initiate and terminate breastfeeding, the results

of which are used to devise new marketing and public policy strategies aimed at supporting the practice.

## Infant Feeding as a Social Marketing Issue

There are universally recognized benefits of breast- over bottlefeeding. Extensive research documents the diverse advantages to infants, mothers, families, and society from breastfeeding and the use of human milk for infant feeding. These include health, nutritional, immunologic, developmental, psychological, social, economic, and environmental benefits (for a thorough review, see American Academy of Pediatrics [hereafter, AAP] 1997). In addition to the abundance of research detailing the medical benefits of breastfeeding, most authorities agree that the vast majority of mothers are able to breastfeed (Jelliffe and Jelliffe 1979). Consequently, the practice is endorsed by government agencies (e.g., U.S. Federal Government, Health Canada, World Health Organization [WHO]/UNICEF), professional associations (e.g., AAP, American Dietetic Association, Canadian Paediatric Society, Dieticians of Canada), and public advocacy groups (e.g., INFACT Canada, La Leche League International, Promotion of Mothers' Milk, Inc., World Alliance for Breastfeeding Action). Unfortunately, there is a clear gap between what medical practitioners advise and what happens in reality. In opposition to the scientific knowledge of the benefits of breastfeeding, many mothers choose not to engage in this practice.<sup>1</sup>

## Setting the Historical Context of Current Practice

Public and private organizations routinely conduct surveys to monitor two critical variables: rates of breastfeeding ini-

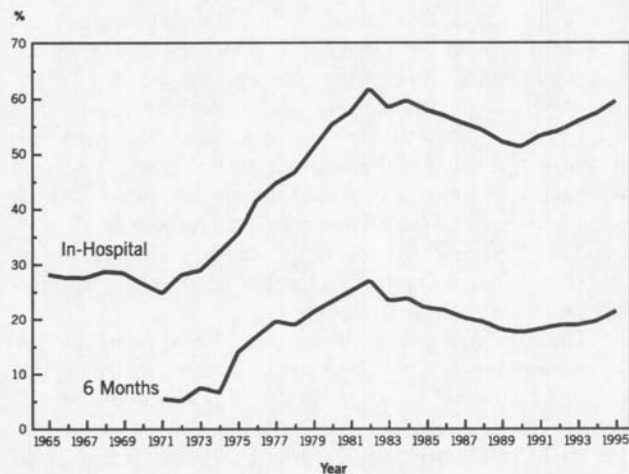
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<sup>1</sup>Although breastfeeding may be the healthiest choice in the vast majority of cases, it is not always appropriate. For example, breastfeeding is not in the best interest of the infant when the mother uses illegal drugs or is infected with diseases such as tuberculosis or human immunodeficiency virus.

Figure 1. U.S. Breastfeeding Rates: 1965–1995



tiation and duration of the nursing period. This is consistent with the belief that not only is the initial attempt to breastfeed important, but the behavior also must be continued over a period of time to deliver maximum benefit to the child. In Figure 1, we illustrate initiation and maintenance rates in the United States since 1971 (Ryan 1997). This graph provides a historical perspective to understand the present situation better. Breastfeeding rates reached an all-time low in the 1960s, when both mothers and medical practitioners turned to infant formula as a clean, modern, and convenient substitute for human milk. The shift to bottlefeeding was probably only a part of complicated changing attitudes in society. However, the considerable marketing efforts of infant formula manufacturers certainly contributed to this shift away from breastfeeding.

In the 1970s, there was a resurgence toward breastfeeding. Although the reasons for this swing are difficult to isolate, some experts attribute the change to negative publicity generated as a result of controversial marketing tactics employed by infant formula companies. The substance of the controversy was the contention that corporations aggressively diverted mothers away from successful breastfeeding toward a reliance on manufactured infant formula, often in circumstances in which the formula constituted a threat to the welfare and even to the lives of those infants (Dobbing 1988). These accusations attracted international attention, including the unprecedented development of the WHO/UNICEF International Code for the Marketing of Breast-Milk Substitutes in 1981 (Manoff 1988). Alternatively, the resurgence of breastfeeding could have been a reaction to the scientific rearing of children, as many women developed a desire for more natural behavior. Furthermore, the psychological aspects of contact between mother and child were becoming important parenting themes (Liestøl, Rosenberg, and Walløe 1988).

In the 1980s, the incidence of breastfeeding in hospitals declined, and infants were being weaned at younger ages (Hay 1991). Women's increased participation in the labor force and the difficulties of breastfeeding at work brought

about some of this change. Fortunately, data from the 1990s are far more encouraging because the trend has turned in favor of breastfeeding. Again, science appears to be playing a role, this time as a strong advocate of the medical virtues of breast milk (AAP 1997). Present breastfeeding adoption and maintenance rates are approaching the peak levels achieved in 1982. Recent research estimates that 59.7% of newborns are receiving the health advantages offered by breast milk and that 21.6% of mothers are nursing six months after their child is born (Ryan 1997).

In spite of the recent resurgence in breastfeeding in the United States, there remains room for improvement. For example, in Canada, 75% of mothers begin breastfeeding in-hospital (Health Canada 1996), and in Scandinavian countries, nearly 100% of mothers attempt breastfeeding (Liestøl, Rosenberg, and Walløe 1988). Furthermore, U.S. duration rates are substantially lower than the recommendations of the WHO (six months if possible) and the AAP<sup>2</sup> (at least the first year). It should be noted that the AAP (1997) recently extended the recommended period from six to twelve months in light of new scientific evidence. Consequently, from a social marketing perspective, our objective is to seek worthwhile incremental gains on two fronts: (1) Increase initiation rates by getting more mothers to try breastfeeding and (2) Increase duration rates by taking measures that prevent mothers from quitting prematurely.

#### Identifying Knowledge Gaps in Present Literature

Fortunately, there exists an abundance of descriptive research that details the rates of breastfeeding initiation and duration (see Ryan 1997). Such large-scale survey research is well suited to examining differences in breastfeeding practices for a host of sociodemographic factors, including ethnicity, mother's age, income and disposable income, education, geography, employment situation, and infant birth weight. The results of these kinds of studies can be used to prioritize marketing efforts, and educational efforts and support programs can be targeted at groups for which initiation rates are lowest—typically mothers who are young, poor, and less educated (Ryan 1997).

A related stream of research examines the institutional factors (e.g., hospital policies and procedures) that affect rates of breastfeeding at time of discharge. Medical practitioners who care for women before pregnancy and birth have a critical role to play in enabling and encouraging them to breastfeed successfully. Obstetricians clearly have the potential to influence breastfeeding initiation. Therefore, it is important to track this group's opinions, experiences, and advice on issues involving breastfeeding promotion and its benefits (Schanler, O'Connor, and Lawrence 1999). Other practices that influence breastfeeding rates include helping mothers initiate breastfeeding immediately after birth, offering the services of a certified lactation consultant, having a written policy on breastfeeding, and not distributing free sample packs containing formula (Health Canada 1996).

<sup>2</sup>The AAP is "an organization of 53,000 primary care pediatricians, pediatric medical subspecialists and pediatric surgical specialists dedicated to the health, safety and well-being of infants, children, adolescents and young adults" (<http://www.aap.org>).

Since the beginning of human existence, all human infants have obtained their main nutrition through breastfeeding. Not only is lactation a biological reality, it is also a cultural phenomenon (Allen and Pelto 1985; Stuart-Macadam and Dettwyler 1995). Anthropologists have devoted much research effort to understanding the culture-specific beliefs and practices underlying breastfeeding. Many of these researchers regard the adoption of bottle-feeding as an index of acculturation to Western ways. Researchers also examine other factors that play a role in infant feeding decisions, such as proximity of the extended family, urban versus rural habituation, and religion. An excellent example of this type of research is Health Canada's (1997) investigation of the multicultural nature of breastfeeding among Canada's various ethnic and religious groups. With this information, a researcher could compare, for example, the breastfeeding practices of Somalian women who heed the words of the Koran with those of Vietnamese women who consider the equilibrium between *Duong* (yin) and *Am* (yang). Cultural profiles can contribute to the understanding of mothers' decisions to initiate and continue breastfeeding. However, these generalizations should not be interpreted too literally, because they may not represent or apply to all individuals within a community. Health Canada (1997, p. 6) makes it quite clear that "There tends to be as much, or more, variation among individual members of the same cultural group or community as there is among different groups or communities." Therefore, it is important to recognize that the beliefs and practices underlying breastfeeding largely are influenced and mediated by individual experience.

What do we know about the experience of breastfeeding? Unfortunately, the survey research that typifies research on infant feeding has been criticized for being overly clinical and simplistic and for having an overreliance on aggregate statistics (Raphael 1985). Perhaps in the rush to generalize feeding patterns, researchers have lost sight of the views and experiences of the mothers who ultimately make the infant feeding decision. A reality check is in order. Following Manoff (1988), we believe that research is needed to probe the qualitative subtleties of mothers' decisions to uncover new insights beyond the current awareness of researchers. Because "all good social marketing starts and ends with the target consumer—the person whose behavior is to be influenced" (Andreassen 1995, p. xii), our research puts the decision maker at the center of inquiry. We ask mothers two questions: (1) Why did you decide to breastfeed? and (2) What motivated you to quit?

### Examining Infant Feeding as a Choice

To achieve the objective of increasing the rates of breastfeeding initiation and duration, we should identify the motives that underlie these important decisions. In a recent review article on infant feeding as a social marketing issue, Oglethorpe (1995) concludes that researchers have oversimplified the complexities of the choice and that much work remains to be done. In particular, the timing of the decision must be examined. The decision to breastfeed must be made immediately after birth, whereas the decision to maintain breastfeeding must be made repeatedly over an indefinite

period of time. Our study attempts to overcome the limitations of previous research in three ways.

First, few studies have examined the infant feeding choice without preconceptions. That is, rarely do researchers ask questions without imposing an a priori list of responses. Although methods that prespecify responses are easy to execute, the list of alternatives may reflect the researcher's perceptions rather than mothers'. Furthermore, the mere presentation of a list of responses may shift mothers' attention to answers that normally would not be considered, which potentially leads to reactivity and biased responses. What is needed is a method that encourages mothers to elaborate on only those reasons that were relevant to their decision to initiate and terminate breastfeeding.

Second, though studies that report choice outcomes are quite common, the evaluative basis for these decisions has received negligible attention. In deciding to initiate breastfeeding, mothers imagine the benefits and consequences that could result from the experience. Breastfeeding is an intensely intimate experience with emotional consequences. Thus, the decision to initiate breastfeeding may be based on expectations of certain physical and/or emotional sensations. In contrast, the decision to terminate breastfeeding is based on evaluations of consequences realized during the experience. Therefore, mothers' decisions to initiate and terminate breastfeeding can be framed in terms of the marketing concept, that is, that products fail in the absence of customer need satisfaction. What is needed is a method that can bring to the surface and elaborate on the needs that motivate mothers to initiate and terminate breastfeeding.

Third, an investigation of mothers' decision to discontinue breastfeeding must recognize the complexities of an experience that unfolds over time (Rubin 1984). Early experiences with breastfeeding are probably the strongest influences on its continuation or abandonment. From a public policy perspective, it is imperative to isolate the motives of mothers who quit prematurely from those of mothers who continue for the recommended period. This important behavioral segmentation variable can be used to prioritize marketing efforts.

Our research adds to existing knowledge by offering a systematic analysis of the reasons mothers initiate and terminate breastfeeding. Unlike previous research, this research aims to derive qualitative insight into mothers' choices using personal interviews in which women can articulate the basis of their choice fully. In addition, this research investigates the often-ignored issue of the timing of mothers' decision to quit and the circumstances that precipitate the decision. In the next section, we discuss our theoretical approach—means–end theory—and describe the methodological technique known as laddering that we use to assess means–end relationships in the context of infant feeding decisions.

### Means–End Theory and Laddering

Few women would disagree with the assertion that "breast is best." However, are mothers inherently interested in the act itself? Unlikely. Rather, mothers engage in the act to realize certain positive outcomes and avoid negative ones. As Leavitt (1960) and Young and Feigin (1975) note, people do not

buy products, they seek benefits. Although there exists a myriad of theoretical perspectives to examine consumer decision making, we select the means–end theoretic approach to uncover the “reasons behind the reasons” that explain why mothers choose to initiate and terminate breastfeeding.

Broadly speaking, the focus of means–end theory is on understanding how consumers think about products and actions. More specifically, the focus is on examining the important meanings that consumers associate with the products they purchase and consume. In means–end theory, it is useful to distinguish among three levels of abstraction, or categories of meaning, that typically are associated with a product (cf. Olson and Reynolds 1983). These categories are product attributes, consequences of product consumption, and personal values relevant to the consumer. *Product attributes* are relatively concrete meanings that represent the physical or observable characteristics of a product. For example, breastfeeding might be described in terms of the immunities transferred to the baby. *Consequences* are more abstract meanings that reflect the perceived benefits (or costs) associated with specific attributes. Immunities transferred to the baby might lead to the consequence of fewer allergies. Finally, *personal values* are highly abstract meanings that refer to centrally held, enduring beliefs, or end states of existence, that people seek to achieve through their purchase and consumption behavior (Rokeach 1973). In this sense, values are the end goals a person strives for in life (Bagozzi and Dabholkar 1994; Pieters, Baumgartner, and Allen 1995; Wickert 1940b). Continuing the previous example, fewer allergies might enable a person to have a healthy child and thereby feel like a good parent. Taken together, this pattern of associations from attributes to consequences and from consequences to personal values represents a special type of knowledge structure called a means–end chain (Gutman 1982; Howard 1977; Olson and Reynolds 1983). The means–end chain for our example would appear as follows:

Attributes → Consequences → Personal values

Transfer immunities to child	→ Fewer allergies →	Healthy child →	Good parent
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This means–end chain model provides a simple way of characterizing the basic pattern of relationships by which the physical features or attributes of products gain personal relevance or meaning for consumers. Observable aspects of the world, or attributes, are personally relevant because they are a means to gaining some desired consequence. Consequences, in turn, are important because they are a means to achieving an end state of existence, or personal value.

Simply stated, the rationale underlying the means–end model is that people choose products with attributes that produce desired consequences and minimize undesired consequences (Gutman 1982). The desirability or importance of these consequences in turn is determined by the personal values with which they are associated. Gutman (1982), following Rokeach (1973), suggests that consequences have positive or negative valences, depending on their relationship to personal values. Thus, from a means–end perspective, values are the key factor that underlies preferences and

choice behavior (cf. Henshel 1971; Homer and Kahle 1988; Rokeach 1973; Rosenberg 1956; Wickert 1940a, b).

The emphasis of the means–end model is different than that of more traditional multiattribute models of choice. The traditional multiattribute approach concentrates on determining if and to what degree particular product attributes are important. The means–end approach, in contrast, focuses on why and how product attributes are important. Why and how are addressed by assessing the sequence of means–end relations that link product attributes to personal values. A description of the procedures used to identify these concepts and linkages follows.

### A Laddering Methodology for Assessing Means–End Relationships

Reynolds and Gutman (1988) offer a methodology for assessing means–end knowledge structures. The procedure, known as laddering, involves a series of one-on-one in-depth interviews. This approach was chosen over focus groups for two reasons. First, the topic of breastfeeding is extremely personal, intimate, and sensitive to many people. Discussing the topic with one person may be difficult enough without expecting them to express their opinions in front of a group. Second, the laddering technique allows for a more rigorous and objective analysis of results than focus groups do.

In a laddering interview, respondents typically are given a simple categorization or sorting task. This task is designed to elicit the basic concepts or distinctions consumers use to differentiate between the stimuli (e.g., products, brands) within the domain of interest. These basic distinctions typically are made at a relatively concrete product attribute level, though distinctions at the higher order consequence and value levels are also possible. The interviewer then asks the subject a series of probing questions to uncover the higher level meanings and associations related to these basic distinctions. These open-ended questions encourage the subject to give answers specific to his or her particular thoughts and in his or her own words. Specifically, the respondent is presented with one of the distinctions elicited from the categorization task and asked, “why is (this distinction) important to you?” The response is used as the focus of the next “why is that important?” question. This questioning process continues until the subject has discussed all related issues. This procedure is called laddering because it forces the respondent up a “ladder of abstraction” and bridges relatively concrete product meanings at the attribute level with more abstract meanings at the consequence and personal value levels. A thorough review of this approach can be found in Reynolds and Gutman (1988).

Analysis of the responses gathered from laddering interviews involves several steps. The data first are reviewed to develop and define appropriate categories of meaning. Because the goal of laddering is to represent categories of meaning that are shared widely by consumers, the researcher should remain true to the interview data and not impose personal idiosyncratic categories (Grunert and Grunert 1995). Next, the verbatim responses are classified into these categories of meaning. These categories are designed to represent the full gambit of responses, while

remaining general enough to collapse similar responses into a single category of meaning. Using this content analysis as a basis, the structural relationships among specific attributes, consequences, and values are aggregated across respondents in an asymmetric implication matrix. This matrix then is used as the basis for constructing a summary chart called a "Hierarchical Value Map" (Reynolds and Gutman 1988) or "Consumer Decision Map" (Reynolds, Westbrook, and Olson 1997). In this article, we use the Consumer Decision Map (CDM) because it corresponds more closely with the objective of our study—to understand infant feeding choices. The CDM is a network diagram that characterizes the key meanings associated with a particular product domain. Note that the objective in the content and structural analyses of the data is not to portray each person's ladder but rather to develop an aggregate representation that is faithful to the knowledge structures of the persons interviewed. In the following sections, we demonstrate this methodology in a study to identify the patterns of meanings involved in two different choice contexts: choosing between breast- and bottlefeeding and when to stop breastfeeding once it has begun.

### Study Objectives and Methodology

A study was conducted to assess the means-end relationships mothers perceive as relevant to the choice to breastfeed. Because the purpose of this study is to understand the reasons that were important to mothers when they made the choice to breastfeed and when they made the choice to stop, the sample was limited to mothers who at least attempted to breastfeed their infants at birth. Of the 77 mothers who were contacted, only 2 did not participate in the study, and another 2 did not breastfeed their children. A total of 73 mothers of preschool children were interviewed by telephone during the spring of 1994 in San Antonio, Tex., using the laddering approach. The sample frame was the parent directory obtained from a local preschool. Descriptive statistics of the sample are as follows: average age = 35.8 years; 53% worked at least part-time; 75% had family incomes in excess of \$45,000 per annum; 74% were Anglo-American, and 21% were Hispanic; and 79% had at least four years of college education (for a detailed description, see the Appendix). In other words, this sample is mostly Caucasian, educated, 30-something years of age, and middle to upper-middle class. Thus, the sample's profile is quite similar to the segment of the general population for which the highest rates of breastfeeding are observed (Ryan 1997).

Each mother received a letter from one of the authors explaining the nature and purpose of the research approximately two weeks prior to the interview. Four adult women trained in means-end theory and the laddering technique conducted interviews. All subjects were asked questions on two different topics: why they chose to breastfeed and why they chose to stop. Each interview lasted approximately 30 minutes.

Subjects first were asked if they breastfed their most recent child. They then were queried for the means-end chain(s) that explained their choice. Then, they were asked if they still were breastfeeding; if they were not, they were questioned for the means-end chain that described why they had stopped. The laddering process was employed to elicit

the means-end chains. Depending on the subject's initial response, the interviewers probed for the other dimensions of meaning that completed a means-end chain. For example, if a subject's initial response to why she breastfed was "bonding," the interviewer would recognize this as a consequence and probe for both the supporting attribute and the relevant personal value. To probe for the supporting attribute, the interviewer would ask questions such as "What is it about breastfeeding that helps with bonding?" The respondent might answer, for example, "the physical contact." The personal value-level meanings would be elicited by probing with questions such as "Why is bonding important to you?" to which the respondent might answer "to be a loving parent."

### Analysis

We analyzed the data from two perspectives. Using accepted methods of analyzing laddering data, we executed a detailed analysis of the concepts mentioned by mothers and computed the associations between related ideas. Recognizing that the laddering data could be differentiated and combined in a more holistic way, we also performed a thematic analysis of the issues that motivated mothers to quit breastfeeding. We expected to produce a more comprehensive account by combining the results of the micro analysis with those of the molar analysis.

Analysis of laddering data traditionally attempts to minimize interpretation in coding the data by making use of conventional content analysis techniques. The analyst first consults the data to develop a comprehensive list of codes. Next, these codes are assigned to the set of responses. Two types of codes are assigned, the first to the semantic meaning of the concept and the second to its level of abstraction (attribute, consequence, value). The goal of this analysis is to produce an accurate depiction of the concepts germane to the decision and the relationships between associated concepts. The end product of this analysis, the CDM, reduces volumes of raw data into a meaningful image. This facilitates inferences and enables the researcher to identify patterns that might not be evident in the raw data (Gengler, Klenosky, and Mulvey 1995).

We also coded the data using a more abstract, molar level of coding. Similar to a statistical factor, thematic codes can group disparate pieces of data into a more inclusive and meaningful whole (Miles and Huberman 1994). These codes must be handled more interpretively, because a more inductive researcher must build the codes in an iterative, grounded way (Glazer 1992). In this study, two molar codes were developed. First, we identified the generic storylines that described mothers' reasons to quit breastfeeding. Second, we noted the principal character around which the story revolved. In the following sections, we detail our analytic procedures.

### Traditional Analysis of Laddering Data

A separate analysis was conducted for each of the two issues: why subjects started breastfeeding and why they stopped. The LadderMap computer software developed by Gengler and Reynolds (1989, 1995) was employed to facilitate the data analysis. The initial task of the analysis was to

enter the verbatim responses for each subject's ladders into the computer. Each ladder was entered, with a separate entry for the individual elements within the ladder. As each element was entered, it was given an initial classification as an attribute, consequence, or value. After all the verbatim responses were entered, content categories were established to enable aggregation of the responses across subjects and further quantitative analysis. An analyst familiar with the topic developed a set of codes (see Table 1). That analyst and another experienced analyst then coded the data. The two analysts compared their codings and had an 80% initial agreement on classifications. Disagreements were discussed and resolved jointly.

The concepts identified in the content analysis represent the key meanings underlying subjects' choices. Structural analysis then was used to identify the linkages or interrelationships among these concepts. The first step in this analysis was to construct an aggregate implication matrix for each of the decisions. An implication matrix is a square matrix in which the rows and columns refer to the concepts developed in the content analysis. The entries in the matrix consist of the number of times each pair of concepts was associated together in the laddering interviews. These associations may be either direct or indirect. To illustrate the distinction between direct and indirect associations, consider a means-end chain of  $A \rightarrow B \rightarrow C$ . This chain consists of direct associations from A to B and from B to C and an indirect association from A to C. In our analysis, we use total associations (direct plus indirect), as recommended by Reynolds and Gutman (1988).

The entries in the matrix provide the basis for constructing the CDM. The first step in constructing a CDM involves selecting a cutoff value to determine which relations should be represented on the map. Thus, the idea in selecting a cutoff is to select a value that captures the dominant relations represented in the matrix (Olson and Reynolds 1983). In this study, a cutoff of three relations was selected for the reasons mothers started breastfeeding, and a cutoff of two relations for the reasons mothers quit breastfeeding. A higher cutoff was required for the reasons mothers started breastfeeding because subjects mentioned more means-end chains for starting than for quitting.

Using these cutoffs, a binary matrix was created in which a cell received a 1 if the corresponding element of the implication matrix was greater than or equal to the cutoff value and a 0 otherwise. These binary flags indicate which associations should be illustrated on the graph. In the interest of constructing a meaningful, uncluttered graph, not all of the marked associations are actually drawn as individual lines. Some of the connections indicated in the binary matrix are considered redundant and therefore are not illustrated on the map. If, for example, the matrix indicates  $X \rightarrow Y$ ,  $X \rightarrow Z$ , and  $Y \rightarrow Z$ , then the connection  $X \rightarrow Z$  is redundant because it is captured in the  $X \rightarrow Y$  and  $Y \rightarrow Z$  relationships. After all the redundant relationships were eliminated, the binary matrix was used to draw the graph.

The final step in constructing the CDM involved representing the number of subjects who mentioned each concept and the relative strength of association across concepts. The number of subjects mentioning a concept is represented on the graph by varying the size of the node (or circle) on the

**Table 1. Content Codes: Reasons Mothers Chose to Begin/Quit Breastfeeding**

<i>Values</i>	
Child's health	Survival/mental and physical health
Child's independence	Let child take the lead, assert itself
Enjoyment	Personal pleasure
Family	Support family/happy family/avoid sibling rivalry
Freedom	Go out/travel/be on the go
Good parent	Responsible/pride/devotion
Happy baby	Keep the child happy
Love	Love for the child
Mother's independence	Freedom/not tied down
Natural	Nature's way/god's way
Self-fulfillment	Mother's happiness
<i>Consequences</i>	
Allergies	Fewer allergies in later life
Bonding	Forming an emotional bond
Convenient	Easier
Cash flow	Needed more income
Child's mental health	Child feels secure and happy
Doctor's advice	Doctor recommended weaning
Healthy child	Current health of child
Hungry baby	Child was hungry all the time
Mother's health	Transient health problems, infections, and so on
Overdemanding	Time consuming/too busy
Protective	Provide for child/what is best for child
Quality/quantity of milk	Not enough/contaminated milk
Reach potential	Have normal, successful life/future
Relationship	Current and future relationship with child
Role conflict	Other children/wife-mother conflict
Save money	Save money/did not spend as much money
Save time	Save time/time for other things
Stress	Tension/frustration/exhaustion/worry/lack of calmness
<i>Attributes</i>	
Cheaper	Cost less
Digestible	Easier for the baby to digest
Emotional contact	Built an emotional bond
Health problems	Baby losing weight/lactose intolerant/premature/sick
Inconvenience	Not easy or convenient
Immunities	Antibodies/immunities passed on through breastfeeding
Mother's discomfort	Pain/uncomfortable
Natural nutrition	Nutrients are right for humans/nutritionally better
No bottles	No need to mess with bottles
Outside influence	Doctor's advice/reference groups
Physical contact	Touching/closeness
Privacy	Difficult to do in public
Support	Family and friends supportiveness
Teething	Child had grown teeth/biting
Tradition	Cultural or family tradition
Uncooperative child	Preferred bottle/lost interest/stopped on own
Work	Return to work/ work environment

map, whereas the relative strength of association across concepts is represented by varying the width of the line that connects related concepts, so that more frequently mentioned associations are shown with thicker lines. This approach for constructing a CDM is based on recommendations made by Gengler, Klenosky, and Mulvey (1995).

### Thematic Analysis of Decision to Quit

In conjunction with the traditional laddering analysis, we performed a thematic analysis of mothers' decision to quit breastfeeding. This wave of analysis required a different set of techniques to transform the data into more meaningful and nuanced units of analysis. Rather than coding explicit concepts, we concentrated on distilling the underlying issues that surfaced across cases. Ultimately, the thematic analysis laid the groundwork for cross-case analyses of mothers' motives by the timing of their decision to quit.

An experienced analyst familiar with inductive pattern-coding techniques examined transcripts for recurring themes. He looked for common threads in informants' accounts of the reason for quitting using several analytic methods described by Miles and Huberman (1994). This quest for identifying "repeatable regularities" relied primarily on reducing original narratives to a set of generic plot-lines that contained characters engaged in goal-directed activity.

After defining what was said, we focused on who said it. We went back to the data to identify which informants invoked which motivational themes. In many cases, the informants described several motives for quitting and, thus, drew on several motivational themes. Therefore, the motivational themes are not mutually exclusive. The cooccurrence of themes may imply a dependency. In the final stage of the analysis, we examined the timing of informants' decision to quit. Employing a tertile split, we separated mothers into three categories: short (0 to 4 months), moderate (4.1 to 10 months), and full (>10 months) duration. From a marketing perspective, we want to target our effort on mothers who quit early. Furthermore, we can examine the relative prevalence of motivational themes among mothers who quit early to establish priorities for our intervention efforts.

## Results

We present the results in two sections. In the first section, we present the reasons mothers gave for choosing breastfeeding, and the second section contains the reasons mothers chose to stop breastfeeding. In Figures 2 and 3, we graphically present the meanings uncovered in the interviews.

### Reasons Mothers Choose to Breastfeed

In Figure 2, we illustrate the CDM for the reasons mothers chose to breastfeed. Note that the value-level concepts (represented by black circles) are positioned at the top of the diagram to reflect the core role they play in defining the meaning of the other less abstract concepts. The most concrete attribute concepts (represented by white circles) are positioned at the bottom of the CDM because they typically began (or occurred early in) the laddering process. Finally, concepts reflecting consequences (represented by shaded circles) are positioned between these two extremes.

Three different patterns of related meanings are discernable in Figure 2. These patterns represent different motivations for choosing breastfeeding over bottlefeeding. These three motivations focus on the child's physical health, bonding with the child, and the mother's convenience. Each of these patterns of meaning represents motives that can be used to develop and direct public policy decisions and public service announcements.

The first motivational pattern, the child's physical health, entails the argument that because mothers' milk is natural, it is both more easily digested and transfers species-specific nutrients and immunities to the child. These nutrients and immunities help prevent allergies in the child and make the child healthier in general. Making the child physically healthier is perceived as serving a protective function that is important for the child to develop fully and reach his or her potential and thereby become a mentally healthy, well-adjusted adult. These consequences are perceived as important for a mother who values being a good parent, loving her child, enjoying her life, and doing what is natural.

The second motivational pattern, bonding with the child, involves the following rationale: Physical contact with the child helps build emotional contact. This emotional contact creates a bond between mother and child that is the basis of a lasting relationship. In turn, this lasting relationship helps the child grow to be a healthier, successful, well-adjusted adult and allows the mother to take pride in being a good parent.

Finally, the third motivation is mother's convenience. Not using bottles was described as making a mother's life less complicated, easier, and generally less stressful. Breastfeeding freed resources, such as time and money, that then could be spent at the mother's discretion, typically on her family. This convenience and reduction in stress enabled a mother, again, to be a better parent.

It is of utmost importance that mothers understand these important benefits. Assuming that all mothers have the best intentions for their infants, it is important that public policymakers communicate that breastfeeding promotes their child's physical health. In addition, the mother stands to benefit from the conveniences offered by breastfeeding compared with bottlefeeding. Finally, it should be communicated that the act of breastfeeding forms a bond between mother and child that is the basis of a lifelong relationship. Fortunately, most professional health care professionals generally are aware of what motivates mothers to initiate breastfeeding. This research adds detail to what is generally known by specifying the means-end knowledge that might enhance the personal relevance and appeal of breastfeeding to mothers.

### Reasons Mothers Stop Breastfeeding

In this section, we present the results of the traditional means-end analysis and then the more detailed findings of the thematic analysis. The CDM in Figure 3 illustrates the reasons mothers stopped breastfeeding. Closer examination of the concepts and links on the map reveals two different patterns of related motivational meanings: the mother's well-being and the child's well-being. Ceasing the breastfeeding relationship is particularly complicated because of the overlapping needs of mother and child, as well as the

Figure 2. Reasons Mothers Choose to Breastfeed

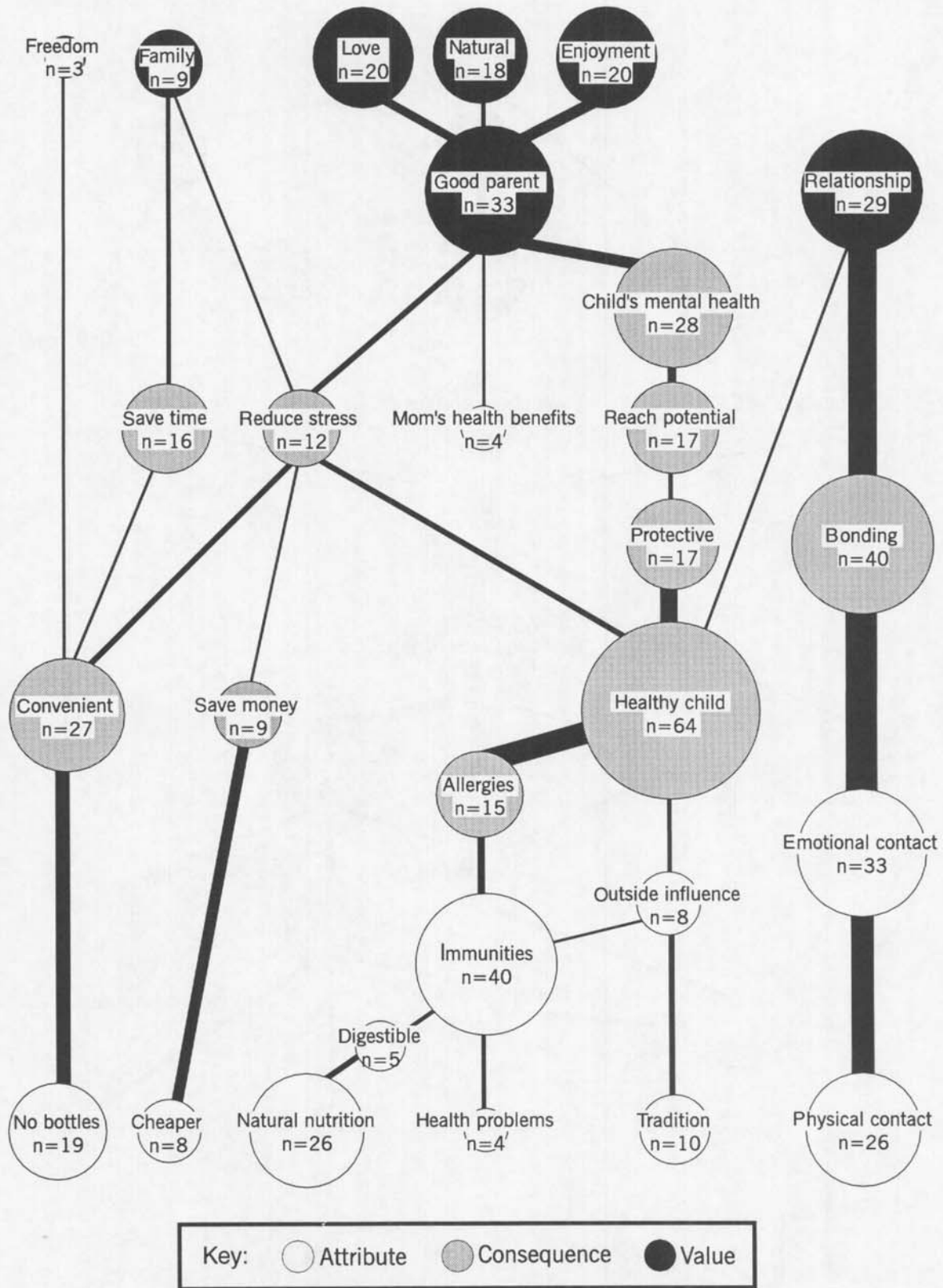
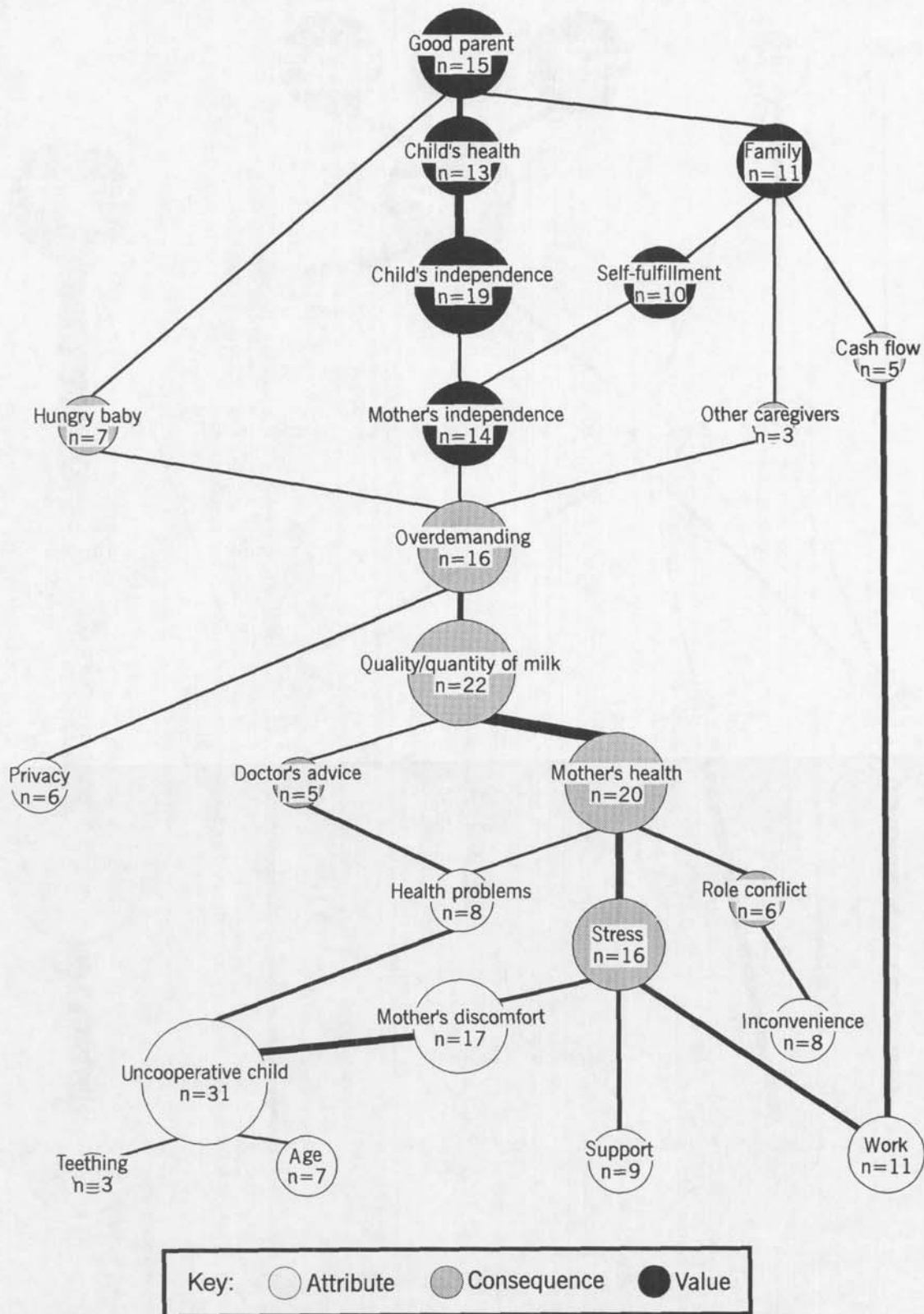


Figure 3. Reasons Mothers Quit Breastfeeding



overlapping costs and benefits to mother and child. Both the mother's and the child's well-being must be addressed if longer duration of breastfeeding is to be promoted.

The mother's well-being motivational pattern involves the mother's physical discomfort with breastfeeding (quite often literally pain), her perceived lack of external support, her need or desire to return to work, and the generally demanding nature of being the child's only source of nutrition. All of these attributes add to the mother's stress and affect her general health. Her general health then affects the quantity and quality of milk that is produced. This presents an overly demanding situation for the mother, which is exacerbated by an infant that seems to be constantly hungry and requires frequent nursing. This demanding situation motivates the mother to initiate alternate feeding methods, typically bottles and/or solid foods. Alternate feeding methods provide the mother with more independence, which thus enables her to meet her own and her family's needs better and, again, perceive herself as a good parent.

The child's well-being motivational pattern is one that focuses specifically on factors related to the child that mothers believed were largely beyond their control. Many mothers described their children as simply being uncooperative or as losing interest (often as a function of age). This lack of cooperation has the dual effect of reducing the mother's milk supply and signaling the child's growing independence from the mother. Giving the child independence was associated with the child's overall health and thus with being a good parent.

The thematic analysis further refined the reasons mothers quit breastfeeding. In Figure 4, we illustrate the prevalence of the nine themes categorized according to the central character of the narrative (baby, mother, other people) and the duration of feeding (short, moderate, full). Each of these themes was central to mothers' decisions to quit, so each is worthy of further discussion.

### *Baby-Centered Motives*

One of the most popular reasons for discontinuing breastfeeding was the child's growing independence. As a child gets older and matures, it is common for it to engage in behaviors to wean him- or herself. For example, mothers may interpret a child's fussiness and lack of cooperativeness as a call for more independence. Although weaning is a natural part of child development, some of the data suggest that this attribution may be ill-placed in certain cases. Could mothers be projecting their own desire for independence onto the child? It seems doubtful that a three-month-old infant intentionally would refuse breast milk as a means to take steps toward personal independence. Furthermore, mothers may misinterpret some of the actions of the child. Uncooperativeness, fussiness, and a lack of interest may reflect conditions such as tiredness or discomfort and should not be interpreted as a preference for bottlefeeding or solid foods.

In making sense of why their babies cry, mothers often come to the conclusion that the infants are hungry. Hungry babies need more milk. Big babies have seemingly insatiable appetites, whereas small babies must not be getting enough to eat. Quite simply, demand exceeds supply. This

may be the case, especially for older children. However, again the attribution for the infant's crying and unhappiness may be misplaced. There are many reasons other than hunger that may explain this behavior. Some mothers who quit breastfeeding early found that their babies continued to cry after they switched to formula.

Some babies are born with disabilities or medical conditions such as lactose intolerance or respiratory illness. Eventually, infants grow teeth and may bite the mother. In these situations, doctors may advise mothers to quit breastfeeding because it is not in the best interests of the child or the mother.

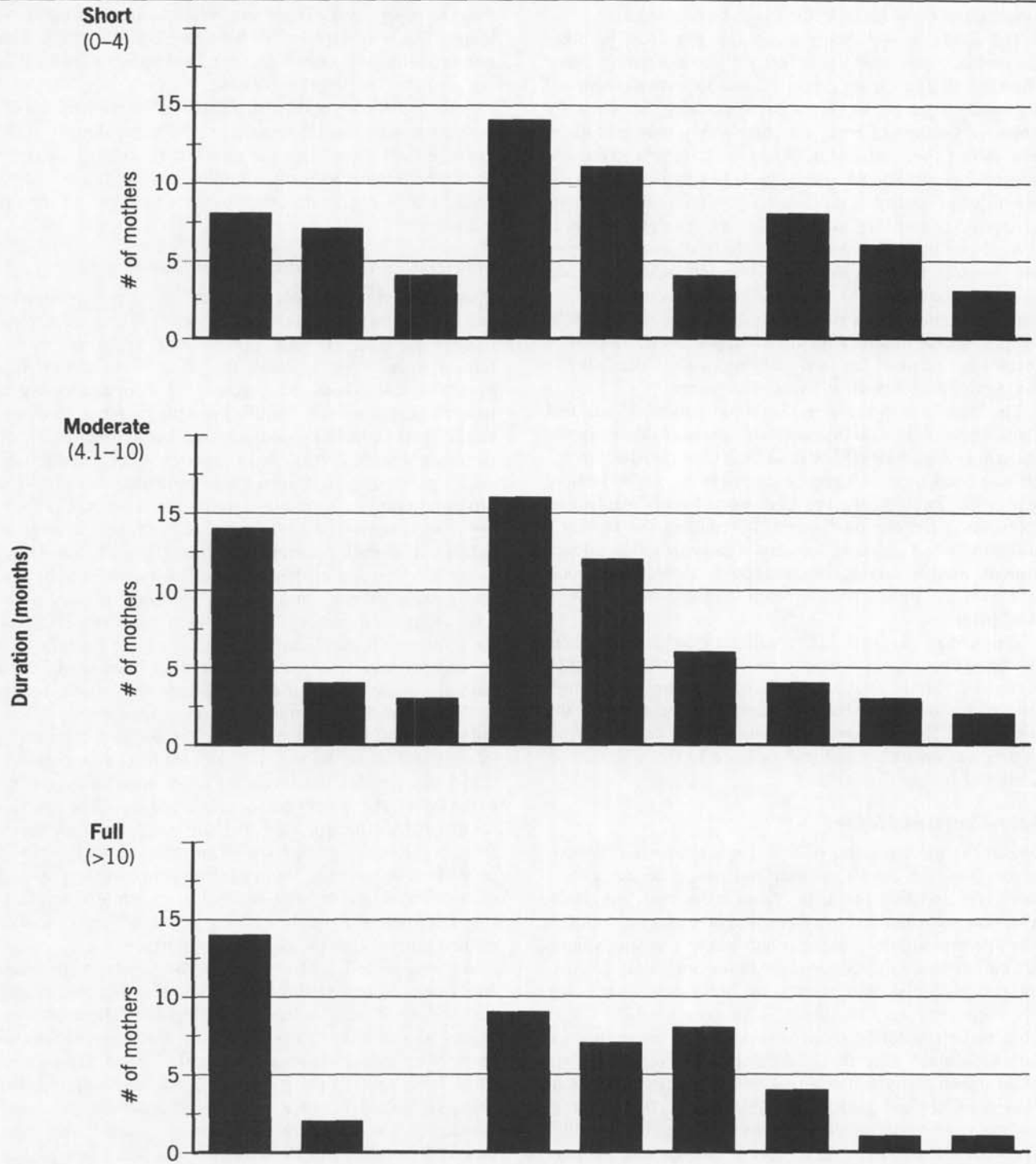
### *Mother-Centered Motives*

Many mothers believed that they were not producing enough milk to satisfy their babies' needs. There are several reasons for this, the most common of which are stress-related issues. New mothers find themselves busier than ever. Physical exhaustion creeps up on them as they try to balance parenting responsibilities with frequent feedings, erratic work schedules, and personal commitments. These demands create stress that impedes milk production. Although mothers recognized this problem, they found it difficult to find the time to rest, relax, and have quality feeding time to bond with the infant. Some mothers manage to balance their milk deficiency with supplementation. However, this interruption often can amplify the problem by further reducing the amount of milk produced. Supply problems are quite frustrating, especially to mothers who know the long-term health benefits of breast milk to the infant.

Mothers may terminate breastfeeding because it is too painful. Medical problems such as breast infections, mastitis, blisters, and bleeding or cracked nipples create high levels of discomfort that become intolerable. This problem is exacerbated when the mother takes antibiotics or prescription drugs. Fearful that the chemicals or illness may pass on to the infant, the mother ceases breastfeeding out of concern for the baby's health. Pain and suffering also may result from problems in getting the infant to latch on the breast properly. Furthermore, some mothers spoke of the physical discomfort of having large, heavy breasts while breastfeeding. They believed that by quitting they could return sooner to their normal size and be more comfortable.

As time passed, mothers had a growing desire to break free from the responsibilities of breastfeeding and secure their personal independence and freedom. There are two angles to this story. First, mothers who were anxious to revive their social life sought the goal of personal freedom. They felt a need to get out of the house and believed that some separation between mother and child was mutually beneficial. These mothers believed that time away from their child would make them happier, and as a consequence, they could be better mothers. Second, several mothers said they wanted to "take their body back." Over the course of their pregnancy, they gained weight, became frustrated when their clothing did not fit properly, and became the target of teasing. As a consequence, their self-confidence faded, and they began to lose their sense of sexuality. They wanted to get back in shape so they could "get back in skirts" and be happier.

Figure 4. Timing and Motivation of Decision to Quit Breastfeeding



Baby-Centered Motives			Mother-Centered Motives			Other-Centered Motives		
Growing up, weaned self n = 36	Hungry & unhappy n = 13	Sick, can't feed n = 7	Too tired, work stress n = 39	In pain, suffering n = 30	Wants her life back n = 18	Lack of support n = 16	Privacy concerns n = 10	Duty to family n = 6

### *Other-Centered Motives*

An important factor in a mother's decision to quit breastfeeding is the lack of support from others. The husband, extended family, and friends can offer physical assistance and moral support to help the mother's effort to breastfeed. As mentioned in the previous section, mothers have a particularly difficult time keeping up with all the household chores after childbirth. Other people can make an enormous difference by undertaking such simple tasks as preparing a meal, doing a load of laundry, or entertaining the older children while the mother is nursing. Aside from helping with chores, people should voice their approval and offer positive reinforcement of efforts to breastfeed. A couple of informants were quite frustrated by parents (typically the mother) or in-laws who voiced disapproval of the practice and pressured them to stop. The comment that "breastfeeding is for poor people" is symptomatic of this view. It should be noted that many of the informants' mothers followed the trend in the 1960s and early 1970s and did not breastfeed. Unfortunately, their personal experience coupled with the observation that "you turned out all right" can undermine the current generation's breastfeeding efforts.

Modesty and concerns for privacy drive many mothers to quit breastfeeding. These women were personally embarrassed to breastfeed in public or believed that breastfeeding was not socially sanctioned behavior. Not wanting to violate the unwritten taboo against nursing in public, these mothers were driven to find private places to nurse. It is often difficult to find a suitable private place, and as a consequence, mothers switched to bottlefeeding as a convenient, socially acceptable alternative.

Some informants were concerned that breastfeeding devoted too much time to one child and drew attention away from the other children. Not wanting to make the other children feel left out and aiming to avoid jealousy, these mothers quit breastfeeding to divide the time spent with their children better. In another case, a mother's plans to become pregnant led her to quit because breastfeeding acts as a natural form of birth control.

It is interesting to note that, even among this group of what might be called "dedicated breastfeeders"—women who were well informed about the benefits of breastfeeding and committed to its success—there were many who stopped at a time they considered "premature." Many mothers expressed regret at stopping, regardless of whether their motivation was primarily for their own or their child's well-being. Many described their decision not as a choice, but as a necessity—as simply being unable, either physically or emotionally, to continue. Although many mothers regretted giving up breastfeeding, they did so for what they believed were important reasons.

### **Discussion and Implications**

In the beginning of this article, we stated that to achieve the objective of increasing the rates of breastfeeding initiation and duration, we must first develop an understanding of how the choice of infant nutrition is made and identify the motives that underlie that decision. Having gained insight into mothers' infant feeding decisions, our attention now turns to the strategic task of using the results to develop mar-

keting and public policy programs that will motivate social change.

The results of this study tell us what personal beliefs motivate mothers to breastfeed and discontinue. Information about motivations to initiate and terminate breastfeeding provides the basis for designing promotional campaigns, proactive public or corporate policy, and training programs to facilitate the practice. The observable attributes of breastfeeding, the consequences of these attributes, and the personal values important to the mothers are all interrelated in terms of motivation and personal relevance. It is important to communicate how these concepts are linked, because it is the set of related ideas that explains why breastfeeding is the best alternative. Successful communication of these connections has a significant positive impact on persuasion (Gengler 1990; Reynolds, Gengler, and Howard 1995).

As Sheth and Frazier (1982) and Andreasen (1995) note, a consumer-orientated, segmented approach toward planned social change is typically more effective than a universal "one type fits all" approach. Not all consumers are alike. In the case of breastfeeding, there exists an attitude-behavior discrepancy among many mothers. Although most mothers know that breastfeeding is good for the child, some mothers choose to breastfeed, whereas others do not. When breastfeeding is adopted, mothers react in different ways to the problems they face. Some need much support and encouragement, whereas others seem to be more resilient and persevering. Adapting Sheth and Frazier's conceptual framework, we summarize in Table 2 four combinations of attitude-behavior consistency/discrepancy, each of which calls for a unique set of marketing and policy strategies.

### **Reinforcement Strategy (Cell 1)**

There exists a sizeable segment of mothers who have a positive attitude toward breastfeeding and choose to engage in the desired behavior for the recommended time. It is important to develop reinforcement strategies to sustain positive attitudes and behavior. Promotional campaigns need to remind nursing mothers of the assorted benefits of breastfeeding and honor and reward these "good mothers" for acting in the best interests of the child.

Efforts to motivate mothers to breastfeed should focus on three main message concepts. First, physical health of the infants is of major concern to mothers. This includes both their immediate health situation and health throughout the infant's life. Messages focusing on infants' health should point out that the mother's milk is natural and has species-specific nutrients and immunities invaluable to development. The importance of the infant's health should be reinforced and made more relevant through the consequences of how the infant will be a healthier, happier, and therefore more successful adult. Ultimately, all these are important to the mother for the personal values of being a good parent, loving her child, enjoying her life, and doing what is natural.

Second, a campaign can emphasize the message of emotional bonding with the infant. This message essentially would communicate that the physical contact of breastfeeding causes emotional contact and bonding between the infant and mother. This is important to the mother for the emotional development of the infant and the infant's future

Table 2. Strategic Mix for Increasing Initiation Rate and Duration of Breastfeeding

		Attitude Toward Breastfeeding	
		Positive	Negative
Relevant Behavior: Breastfeeding	Engaged	<p><b>Cell 1</b> Reinforcement strategy</p> <ul style="list-style-type: none"> <li>•Sustain positive attitude by highlighting the intrinsic rewards and logic behind the behavior</li> </ul>	<p><b>Cell 2</b> Rationalization strategy</p> <ul style="list-style-type: none"> <li>•Generate attitude change that will be consistent with behavior</li> <li>•Emphasize long-term benefits to mother and child to counteract temporary concerns</li> </ul>
	Nonengaged	<p><b>Cell 3</b> Inducement strategy</p> <ul style="list-style-type: none"> <li>•Minimize or remove constraints to facilitate behavior</li> </ul>	<p><b>Cell 4</b> Confrontation Strategy</p> <ul style="list-style-type: none"> <li>•Minimize appeal of competing behavioral alternatives</li> <li>•Educate and persuade to change attitudes</li> </ul>

(Adapted from Sheth and Frazier 1982.)

development. These are things in which the mother takes pride and gets a feeling of being a good parent.

Third, convenience was an important factor to many mothers. Not using bottles made life less complicated, easier, and generally less stressful. This saves both time and money and allows the mother to care better for the rest of the family. Although this message is important, it is not likely to be as effective as the first two because it is conditional on the mother being under pressure for convenience. Furthermore, because bottlefeeding also is viewed as convenient in certain situations (i.e., public places), this message strategy may activate counterargumentation, particularly among mothers with negative attitudes toward breastfeeding or who are concerned about privacy.

The three message concepts reinforce breastfeeding behavior by encouraging women already breastfeeding (cells 1 and 2) to persevere during this stressful and demanding time. In addition, these messages may be used to motivate more mothers to breastfeed (cells 3 and 4). However, the unique characteristics of mothers who prefer bottlefeeding, cannot breastfeed, and/or have negative attitudes toward breastfeeding warrant special attention. We address those needs next.

### Rationalization Strategy (Cell 2)

A rationalization strategy is most appropriate for targeting mothers who currently breastfeed but have a negative attitude toward it. Quite often, negative attitudes may be only temporary, the result of momentary inconveniences, or a consequence of the frustration associated with the perception of having "no choice" but to breastfeed. In these cases, the logic provided by the means-end results may be used to generate attitude change that is consistent with the act of breastfeeding.

Public policy decisions must be directed toward alleviating some of the stress of breastfeeding to prevent premature termination. It was interesting to note the frequency of decisions based on misinformation or lack of information. For example, women often said that they discontinued breastfeeding because of the frequency of their infants' cries, which they attributed to hunger and not producing enough milk. On switching to bottles (which then disrupts the natural milk supply), they found no reduction in crying. Again, the provision of information about normal infant behavior can provide vital support and assistance to a new mother. This information can be valuable in helping mothers know both when breastfeeding is not working and when it is.

Even the most devoted mother will consider quitting breastfeeding if the experience causes pain or discomfort. Breast or nipple problems are usually temporary, preventable, and treatable and arise in the first few weeks (Ellis and Hewat 1984). Because many mothers stated this as a reason for giving up breastfeeding, it should (and does) receive a high priority from those aiming to promote the practice. Health care professionals have the expertise and credibility to deal with this problem. Most hospitals and pediatricians already offer the services of lactation consultants who can coach mothers on how to prepare for breastfeeding and teach the techniques used to avoid or alleviate the pain. Videos are a less expensive alternative. The timing of this advice is paramount and must be offered without delay to assist mothers experiencing lactation crises. Reducing the pain and anxiety of feedings is critical to avoiding reductions or interruptions in the milk supply and preventing premature discontinuation. Large-scale research suggests that training should become a standard (rather than elective) part of mothers' pre- and postnatal medical consultations (Health Canada 1996).

Social issue advertising is often subject to counterargument, which thus presents some unique challenges to developing effective positioning strategies (Reynolds, Westberg, and Olson 1997). In the case of breastfeeding, several mothers in this study raised the issue of convenience when discussing the reasons they stopped breastfeeding. To many mothers, breastfeeding was perceived as less convenient than bottlefeeding because other caretakers could assume responsibility for bottlefeeding the child. Furthermore, bottlefeeding does not require the privacy most nursing mothers desire. In contrast, mothers with more positive attitudes toward breastfeeding recognized the convenience of breastfeeding because it does not involve the inconveniences of preparing formula, ensuring refrigeration, and cleaning and sterilizing bottles. Curiously, convenience was cited as a reason both to breastfeed and to stop. Two distinct strategies should be considered, one compensatory, the other subversive. In the first approach, a clear depiction of the conveniences of breastfeeding should be made that simultaneously acknowledges that it is demanding and requires support. In terms of corporate and public policy issues, those attributes that make breastfeeding inconvenient should be considered and reduced wherever feasible. The second strategic approach is more extreme and operates by undermining competitors' strength by showing that the strength does not exist. Following the rule "if I cannot own a particular positive perceptual orientation neither will my opponent" (Reynolds and Whitlark 1995, p. 15), communications campaigns should be developed to undermine bottlefeeding's perceived convenience benefits. By eliminating convenience as a choice criteria, marketers and public policy officials then could refocus attention on linking breastfeeding's many benefits to personal values, such as taking care of the family and being a good parent. The negative positioning tactics employed by this second strategy, however, would require a subtle execution to avoid the risk of inciting public resentment.

### Inducement Strategy (Cell 3)

In cases in which mothers have positive attitudes toward breastfeeding but do not or cannot engage in the desired behavior, an inducement strategy is appropriate. Inducement strategies are aimed at eliminating or minimizing the constraints that prevent breastfeeding. Of the reasons mothers chose to stop breastfeeding, only some are actionable. The lack of external support expressed by many mothers implies that social acceptance and knowledge of breastfeeding among other members of the family must be improved. For example, the mother's parents and in-laws must be informed of the considerable scientific evidence accumulated in the past 20 years detailing the medical benefits of breast milk and its superiority over formula. The level of family support also may reflect cultural differences in the prevailing values, beliefs, norms, and practices of a particular ethnic group. Mothers need the support of husbands, friends, and family members. Educational efforts targeted at these people must build respect for the need to breastfeed and the associated needs of the mother.

Another reason mothers had to discontinue early was the need or desire to return to work. The solutions to this problem are varied, depending on different career and personal financial situations. Employers can develop formal and flexible policies to facilitate leaves, part-time work, and privacy for breast pump usage in the workplace. Additional policy issues include childcare at or near the workplace, flexible schedules for nursing breaks, and facilities for the refrigeration of pumped breast milk. These policies must recognize that there are two separate and distinct reasons to return to work. Although some financially stressed mothers must return to work for the income, others are concerned about hindering their career development. Although public policy must find ways to alleviate the financial strain facing many mothers, creative solutions to the latter problem are essential to make breastfeeding compatible with a professional career. These solutions must find ways for nursing mothers to return to work without placing too much stress on them. Providing options for returning on a part-time or flexible schedule may be one option, and capitalizing on technologies for working at home may offer other possibilities.

Some women do not feel comfortable breastfeeding in public places. Although female breasts are associated primarily with motherhood, in Western cultures, they often connote sexual or aesthetic meanings. Therefore, breastfeeding in public becomes an urban taboo that is not to be undertaken in view of other people, particularly strangers (Helsing and King 1982). There are two directions that can be taken to encourage the practice of breastfeeding in public. First, mothers could be shown clothing and techniques that discreetly permit breastfeeding in public. Second, a more daunting task would be to challenge the prevailing cultural norms and attempt to "normalize" breastfeeding in public.<sup>3</sup> If this alternative is chosen, it might be wise to seek acceptance within the household and among friends before attempting to achieve the more ambitious goal of expecting

<sup>3</sup>For example, Health Canada's 1994 "Breastfeeding: Anytime, Anywhere" promotional campaign.

modest mothers to breastfeed in restaurants or on buses. Furthermore, this promotion should be tested for its effectiveness, because it is unclear how the public would react.

#### **Confrontation Strategy (Cell 4)**

A confrontation strategy may be necessary to target mothers whose attitudes and actions oppose the idea of breastfeeding. The marketer's objective is challenging: convince these mothers that breastfeeding is positive so they will adopt breastfeeding as the preferred method of infant feeding. To achieve this goal, marketers may need to develop programs that move consumers to this ideal in stages (Andreassen 1995). Because moving these mothers directly to cell 1 is likely to be quite difficult, most the following strategies use a two-stage process to move people from cell 4 to cell 2 or 3 and then eventually to cell 1 (Sheth and Frazier 1982).

Much of the responsibility for motivating mothers to initiate and continue breastfeeding for the recommended period of time should be assumed by the health care provider. The patient-physician relationship is extremely important in stimulating health-related behavior (Roth 1994). Physicians (obstetricians, pediatricians, and pharmacists) can leverage their expertise to deliver effective, persuasive messages to mothers on the importance of breastfeeding. The highly involving, interactive, face-to-face consultation between doctor and patient shares many of the advantages of personal selling, including (1) the ability to use both verbal and nonverbal communications, (2) tailoring messages to individual mothers, and (3) initiating a dialogue that solicits feedback to ensure comprehension of the benefits. The results of this study can be used as a conceptual template for physicians to structure their arguments and stories by linking attributes to consequences to values.

Public policy also could be directed toward creating incentive programs to encourage women to breastfeed their newborns. The Women, Infants, and Children Supplemental Feeding Program traditionally has been an important source of food for low-income pregnant women, mothers, and children (Scheffler 1992). Recipients use vouchers to purchase formula of their choice. Breastfeeding should be promoted aggressively among recipients because of its nutritional value and cost savings. Perhaps a program could be designed to demarket bottlefeeding (the competitive alternative to breastfeeding) by creating an opportunity cost to the mother. Although economic matters were of minimal importance in this study, we realize that the price/cost issue may be of greater relevance to mothers of lower economic status. Mothers also should be told how breastfeeding could improve their health and help them regain their prepregnancy shape. Although self-interest may inspire some mothers to consider breastfeeding, most mothers who breastfeed are concerned primarily with their infants' needs.

#### **Limitations and Further Research**

This research has explored women's motivations to both initiate and cease breastfeeding. By acquiring a better understanding of the people who ultimately make the decision to breastfeed or not, marketing managers and public policy officials are better equipped to develop effective message strategies and programs to support the practice.

Although this research takes a crucial first step, much work remains to be done in understanding this important consumption decision.

The means-end concepts and themes identified in this study traditionally are used to generate message strategy themes for marketing communications. Because of space restrictions, we cannot specify fully how to translate our results into effective communications. However, we encourage readers to consult the growing literature that describes procedures for creating advertising messages from means-end results (Gengler and Reynolds 1995; Olson and Reynolds 1983; Reynolds and Gengler 1991; Reynolds and Rochon 1990). Pretesting the effectiveness of these communications is an important (yet often overlooked) step, especially because many types of appeals and executions could be derived from the findings. Social marketers and public policymakers must conduct research to assess the target customer's reaction to the message to ensure that the communication is "on-strategy."

In statistical terms, a sample represents that universe from which it was drawn and none else. The strategies described in this article were derived from a group of middle- to upper-middle-class women. As typically is the case, additional research is needed to explore differences of motivations and beliefs between this group and other groups in society. Our sample is limited in two ways. First, the sample is limited demographically to a group of educated, mature, middle-class mothers. Knowledge and understanding of information about breastfeeding may be significantly different in other demographic groups (cf. Weller and Dungy 1986; Wiemann, DuBois, and Berenson 1998). Second, the sample is limited on a behavioral basis to mothers who originally made the choice to breastfeed. Because the goal of this study was to examine reasons to breastfeed, this is not a severe limitation. It is doubtful if many unique reasons to breastfeed will be found by interviewing mothers who chose not to breastfeed. If the goal were to understand the motivations of mothers for choosing not to attempt to breastfeed, this alternative sample would be appropriate. Further research could study the reasons some mothers never even attempt to breastfeed. Because lower socioeconomic groups have the most to gain from breastfeeding (Raphael 1979) and demonstrate the lowest incidence and duration of breastfeeding (Ryan 1997), they provide a logical sampling frame for such a study.

Other researchers have studied important policy issues using means-end theory and the laddering methodology. The usefulness of means-end theory extends beyond the traditional realm of brand choice and can offer insight into various types of social behavior, including recycling behavior (Bagozzi and Dabholkar 1994), AIDS education (Reynolds, Westberg, and Olson 1997), and consumer involvement in preventative health care programs (Roth 1994). Future applications of the theory may provide a better understanding of the motivations involved in different types of substance abuse/abstinence decisions, the choices to engage in or abstain from various sexual activities, various dietary choices, commuting choices, or even daily exercise routines. In-depth knowledge of these choice motivations would be invaluable when designing intervention, prevention, or promotion programs.

## Appendix. Informant Characteristics

Mother's Age (years)	25 or younger	2	Household Income	<\$15 K	2
	26-30	7		\$15-25 K	1
	31-35	25		\$25-35 K	5
	36-40	27		\$25-45 K	10
	41-45	9		\$45-55 K	9
	Older than 45	2		>\$55 K	44
Mother's Ethnicity	Anglo	53	Employment Status	Yes	29
	Hispanic	15		No	38
	Asian	1		Part-time	5
	African-American	1	Mother's Occupation	n/a	35
	Middle Eastern	2		Artist	4
		Teacher		7	
		Professional white-collar		10	
		Health care professional		8	
Mother's Education	High school	6	Self-employed professional	2	
	2-year degree	9	Military	1	
	4 year degree	33	Clerical	3	
	Graduate degree	24	Service	2	
Number of Children	1	13			
	2	39			
	3	14			
	4	4			
	5	2			

Although the laddering methodology used in this study is well suited to uncovering consumers' rationale for their choices, other methods may be more successful in uncovering deeper meanings. Metaphor elicitation (Zaltman 1997; Zaltman and Coulter 1995), storytelling (Thompson 1997), or ethnography (Arnould and Wallendorf 1994) may add layers to our understanding of the infant feeding decision by uncovering the sensory-level emotions that are a significant part of mothers' nursing experiences. In addition, further research should focus on identifying actions and motives that are not articulated easily in an interview. Although this research adopted a psychological perspective to gain insight into mothers' motives, other techniques are better suited to tracing the sociological significance and cultural roots of these meanings.

Breastfed babies are healthier than those nourished by bottle. Educational programs to increase the rates of breastfeeding initiation and duration are an important factor in solving some of the problems that face society through the improvement of the lifelong physical and mental health of the children and the initiation of a stronger family structure through bonding with the mother.

## References

- Allen, Lindsay H. and Gretel H. Pelto (1985), "Research on Determinants of Breastfeeding Duration: Suggestions for Biocultural Studies," *Medical Anthropology*, 9 (2), 97-105.
- American Academy of Pediatrics, Work Group on Breastfeeding (1997), "Policy Statement: Breastfeeding and the Use of Human Milk," *Pediatrics*, 100 (December), 1035-39.
- Andreasen, Alan R. (1995), *Marketing Social Change*. San Francisco, CA: Jossey-Bass.
- Arnould, Eric J. and Melanie Wallendorf (1994), "Market-Oriented Ethnography: Interpretation Building and Marketing Strategy Formulation," *Journal of Marketing Research*, 33 (November), 484-504.
- Bagozzi, Richard P. and Pratibha A. Dabholkar (1994), "Title Consumer Recycling Goals and Their Effect on Decisions to Recycle: A Means-End Chain Analysis," *Psychology and Marketing*, 11 (4), 313-24.
- Dobbing, J. (1988), *Infant Feeding: Anatomy of a Controversy*. Berlin, Germany: Springer-Verlag.
- Ellis, Donelda J. and Roberta J. Hewat (1984), "Breast-Feeding: Motivation and Outcome," *Journal of Biosocial Sciences*, 16 (1), 81-88.
- Gengler, Charles E. (1990), "The Architecture of Advertising Strategy: A Structural Perspective on Persuasive Communications," doctoral dissertation, Department of Marketing, University of Texas-Dallas.
- , David B. Klenosky, and Michael S. Mulvey (1995), "Improving the Graphic Representation of Means-End Results," *International Journal of Research in Marketing*, 12 (3), 245-56.
- and Thomas J. Reynolds (1989), "Means-End Structural Analysis: Computer-Generated Hierarchical Value Maps," paper presented at EIASM Workshop on Consumer Behavior: Extending the Cognitive Structure Perspective, Brussels, Belgium (November).
- and —— (1995), "Consumer Understanding and Advertising Strategy: Analysis and Translation of Laddering Data," *Journal of Advertising Research*, 35 (4), 19-33.
- Glazer, Bernard (1992), *Emerging Versus Forcing: Basics of Grounded Theory*. San Francisco, CA: Jossey-Bass.
- Grunert, Klaus G. and Suzanne C. Grunert (1995), "Measuring Subjective Meaning Structures by the Laddering Method: Theoretical Considerations and Methodological Problems," *International Journal of Research in Marketing*, 12 (3), 209-25.
- Gutman, Jonathan (1982), "A Means-End Chain Model Based on Consumer Categorization Processes," *Journal of Marketing*, 46 (April), 60-72.

- Hay, W.W., Jr. (1991), *Neonatal Nutrition and Metabolism*. St. Louis, MO: Mosby-Year Book Inc.
- Health Canada (1996), *Nutrition for Healthy Term Infants*, [available at <http://www.hc-sc.gc.ca/hppb/childhood-youth/cyfh/physicalhealthresources.htm>].
- (1997), *A Multicultural Perspective of Breastfeeding in Canada*, [available at <http://www.hc-sc.gc.ca/hppb/childhood-youth/cyfh/physicalhealthresources.htm>].
- Helsing, E. and F.S. King (1982), *Breast-Feeding in Practice: A Manual for Health Workers*. Oxford, England: Oxford University Press.
- Henshel, A.M. (1971), "The Relationship Between Values and Behavior: A Development Hypothesis," *Child Development*, 42 (2), 1997–2007.
- Homer, Pamela M. and Lynn R. Kahle (1988), "A Structural Equation Test of the Value-Attitude-Behavior Hierarchy," *Journal of Personality and Social Psychology*, 54 (4), 638–46.
- Howard, John C. (1977), *Consumer Behavior: Application of Theory*. New York: McGraw-Hill.
- Jelliffe, D.B. and E.F.P. Jelliffe (1979), *Human Milk in the Modern World*. Oxford, England: Oxford University Press.
- Leavitt, Theodore (1960), "Marketing Myopia," *Harvard Business Review*, 38 (September/October), 26–48.
- Liestøl, Knut, Margrit Rosenberg, and Lars Walløe (1988), "Breast-Feeding Practice in Norway: 1960–1984," *Journal of Biosocial Sciences*, 20 (1), 45–58.
- Manoff, R.K. (1988), "Mass-Media and Breastfeeding Promotion," in *Programmes to Promote Breastfeeding*, D. Jelliffe and E. Jelliffe, eds. Oxford, England: Oxford University Press.
- Miles, Matthew B. and A. Michael Huberman (1994), *Qualitative Data Analysis*, 2d ed. Thousand Oaks, CA: Sage Publications.
- Oglethorpe, Janet (1995), "Infant Feeding as a Social Marketing Issue: A Review," *Journal of Consumer Policy*, 18 (2), 293–314.
- Olson, Jerry C. and Thomas J. Reynolds (1983), "Understanding Consumers' Cognitive Structures: Implications for Advertising Strategy," in *Advertising and Consumer Psychology*, Vol. 1, L. Percy and A. Woodside, eds. Lexington, MA: Lexington Books, 77–90.
- Peter, J. Paul and Jerry C. Olson (1994), *Understanding Consumer Behavior*. Burr Ridge, IL: Richard D. Irwin.
- Pieters, Rik, Hans Baumgartner, and Doug Allen (1995), "A Means-End Chain Approach to Consumer Goal Structures," *International Journal of Research in Marketing*, 12 (3), 227–39.
- Raphael, D. (1979), *Breastfeeding and Food Policy in a Hungry World*. New York: Academic Press.
- (1985), *Only Mothers Know*. Westport, CT: Greenwood Press.
- Reynolds, Thomas J. and Charles E. Gengler (1991), "A Strategic Framework for Assessing Advertising: The Animatics vs. Finished Issue," *Journal of Advertising Research*, 31 (5), 61–71.
- , ———, and Daniel J. Howard (1995), "A Means-End Analysis of Brand Persuasion Through Advertising," *International Journal of Research in Marketing*, 12 (3), 257–66.
- and Jonathan Gutman (1988), "Laddering Theory, Method, Analysis and Interpretation," *Journal of Advertising Research*, 28 (1), 11–31.
- and John P. Rochon (1990), "Means-End Based Advertising Research: Copy Testing is Not Strategic Assessment," *Journal of Business Research*, 21 (2), 1–12.
- , Steven J. Westberg, and Jerry C. Olson (1997), "A Strategic Framework for Developing and Assessing Political, Social Issue and Corporate Image Advertising," in *Values, Lifestyles, and Psychographics*, Lynn Kahle and Larry Chiagouris, eds. Mahwah, NJ: Lawrence Erlbaum Associates, 3–24.
- and David B. Whitlark (1995), "Applying Laddering Data to Communications Strategy and Advertising Practice," *Journal of Advertising Research*, 35 (4), 9–17.
- Rokeach, M.J. (1973), *The Nature of Human Values*. New York: The Free Press.
- Rosenberg, M. (1956), "Cognitive Structure and Attitudinal Effect," *Journal of Abnormal and Social Psychology*, 53 (2), 367–72.
- Roth, Martin S. (1994), "Enhancing Consumer Involvement in Health Care: The Dynamics of Control, Empowerment, and Trust," *Journal of Public Policy & Marketing*, 13 (1), 115–32.
- Rubin, R. (1984), *Maternal Identify and the Maternal Experience*. New York: Springer Publishing.
- Ryan, A.S. (1997), "The Resurgence of Breastfeeding in the United States," *Pediatrics*, 99 (4), [available at <http://www.pediatrics.org/cgi/content/full/99/4/e12>].
- Schanler, Richard J., Karen G. O'Connor, and Ruth A. Lawrence (1999), "Pediatricians' Practice and Attitudes Regarding Breastfeeding Promotion," *Pediatrics*, 103 (3), [available at <http://www.pediatrics.org/cgi/content/full/103/3/e35>].
- Scheffler, K. (1992), "USDA Agencies Work Together on Nutrition Education Initiative," *Food and Nutrition*, 22 (1/2), 3–10.
- Sheth, Jagdish N. and Gary L. Frazier (1982), "A Model of Strategy Mix Choice for Planned Social Change," *Journal of Marketing*, 46 (Winter), 15–26.
- Stuart-Macadam, P. and K.A. Dettwyler (1995), *Breastfeeding, Biocultural Perspectives*. New York: Aldine De Gruyter.
- Thompson, Craig J. (1997), "Interpreting Consumers: A Hermeneutical Framework for Deriving Marketing Insights from the Texts of Consumers' Consumption Stories," *Journal of Marketing Research*, 34 (November), 438–55.
- Weller, S.C. and C.I. Dungy (1986), "Personal Preferences and Ethnic Variations Among Anglo and Hispanic Breast and Bottle Feeders," *Journal of Social Science and Medicine*, 23 (6), 539–48.
- Wickert, F. (1940a), "The Interrelations of Some General and Specific Preferences," *Journal of Social Psychology*, 11, 275–302.
- (1940b), "A Test for Personal Goals," *Journal of Social Psychology*, 11, 259–74.
- Wiemann, Constance M., Jacqueline C. DuBois, and Abbey B. Berenson (1998), "Racial/Ethnic Differences in the Decision to Breastfeed Among Adolescent Mothers," *Pediatrics*, 101 (6), [available at <http://www.pediatrics.org/cgi/content/full/101/6/e11>].
- Young, Shirley and Barbara Feigin (1975), "Using the Benefit Chain for Improved Strategy Formulation," *Journal of Marketing*, 39 (July), 72–74.
- Zaltman, Gerald (1997), "Rethinking Market Research: Putting People Back In," *Journal of Marketing Research*, 34 (November), 424–37.
- and Robin Coulter (1995), "Seeing the Voice of the Consumer: Metaphor-Based Advertising Research," *Journal of Advertising Research*, 35 (4), 35–51.