

Maternal Locus of Control and Infant Feeding Choice

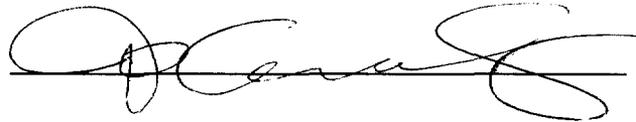
An Honors Thesis (HONRS 499)

by

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JoCarol Chezem

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Purpose of Thesis

As extensive research indicates, breastfeeding is the optimal infant feeding method. A breastfed infant is much less likely to develop illnesses in infancy and early childhood such as ear infections, pneumonia, and diarrhea. Because breastfeeding is such an effective and inexpensive form of preventive medicine, those in the health care field--particularly the area of nutrition--are extremely interested in improving the breastfeeding initiation and duration rates in the United States and other countries

As an individual studying in the area of nutrition (dietetics), and as a mother, I am very interested in improving the breastfeeding rates in this country, and in understanding what makes a woman select one method of infant feeding over another.

In my studies here at Ball State, I have heard and read about Julian Rotter's theory of Locus of Control. It is a psychological theory which divides individuals into two categories--those who are internally motivated and those who are externally motivated. Those who are internally motivated believe that they are in control of their lives and they assume responsibility for consequences. Those with an external locus of control believe that their lives are controlled by outside forces (i.e., God, fate, luck etc.).

To better understand the motivating factors which influence a woman's infant feeding choice, this study examines locus of control in pregnant women who have made a decision concerning how they intend to feed their newborn children. My intent was to connect a theory explaining personality to the choices made by women in order to better understand the many motivational factors which influence women to breastfeed or to formula-feed. A better understanding of these factors will lead to a more effective way of educating women concerning the benefits of breastfeeding.

Table 1: Demographic Characteristic of Subjects*

Characteristic	Planned Method of Infant Feeding:			Significance
	Breast milk (n=30)	Formula (n=28)	Both (n=31)	
Mean age	28.5	26.8	28.8	NS
Education				.05
high school	20%	46%	26%	
college	67%	50%	68%	
post grad	13%	4%	7%	
Previous child(ren)	47%	79%	52%	.03

*n=89

Table 2: Source of Initiation for Infant Feeding Information

Source	Other Initiated	Self Initiated	Both Initiated
Health Care Provider (n=67)*	70%	20%	10%
Family (n=60)	27%	55%	18%
Friends (n=65)	27%	49%	24%
Reading Materials (n=72)	46%	25%	29%
Audiovisual Materials (n=18)	89%	6%	6%

* The n values represent numbers of subjects who indicated the source of infant feeding information as well as the individual (s) (other, self or both) who initiated the exchange of information .

Purpose:

Overwhelming evidence supports breastfeeding as the best choice for infant feeding. The 1997 Position Paper of the American Dietetics Association endorses breastfeeding:

". . .[because of] the indisputable nutritional, immunological, psychological and economic benefits (American Dietetic Association, 1997)."

Currently, the incidence of breastfeeding in the United States is between 50% and 60%, well below the goal of 75% set by "Healthy People 2000," a health promotion program developed by the U.S. Department of Health and Human Services (U.S. Dept. of Health and Human Services, 1991). These sub-optimal rates seriously impact the health and well-being of our nation's children. Compared to breastfed infants, infants who do not receive breast milk are 4 to 16 times more likely to develop diarrhea in the first six months, and twice as likely to develop diarrhea in the first year (Popkin, 1990; Dewey, 1995). Formula-fed infants are five times more likely to develop prolonged ear infections within the first year and twice as likely to develop acute ear infections within the first four months, when compared to breastfed infants (Dewey, 1995; Duncan et al., 1993). Breastfed infants are also less likely to develop urinary tract infections, gastroenteritis, bronchitis and pneumonia, and they are less likely to die of Sudden Infant Death Syndrome (SIDS) (Pisacane et al., 1992; Wright et al., 1998; Ford et al., 1992). As they mature, children who were breastfed are less likely to develop atopic disease and have a reduced chance of developing insulin dependant diabetes (IDDM) (Saarinen, 1995;

Gerstein, 1994). Clearly, breastfeeding is an invaluable tool as our health care system moves from treatment of illness to preventive medicine.

Fostering breastfeeding is a difficult task in a culture in which breasts are viewed as sexual objects, technology is valued over tradition, and mothers, more often than not, work outside the home (Dettwyler, 1995; Quandt, 1995). Nevertheless, several intervention studies have reported increased breastfeeding initiation rates when pregnant women are exposed to accurate breastfeeding information (Giugliani et al., 1994; Hartley and O'Conner, 1996; Shoham-Yakubovich et al., 1990). This suggests that breastfeeding information (or lack thereof) may be an important factor in the infant feeding decision process (Matich and Sims, 1992; McNatt and Fetherston, 1995).

During pregnancy, women receive information about infant feeding, both breastfeeding and formula-feeding, from a variety of sources. Major resources from the health care field include prenatal care providers and prenatal health education classes (Giugliani, et al. 1994; Fetherston, 1995; Hartley and O'Conner, 1996; Grossman et al., 1990). Family and friends, as well as reading materials, may also provide information in a more informal setting (Matich and Sims, 1992; Novotny et al., 1994).

There are a multitude of resources available to pregnant women, but not every woman chooses to access them. Insight into why some women choose to access information may be found by studying their personalities. Locus of Control (LOC) is a personality trait that describes a person beliefs related to control of life events. Julian Rotter, who originated the theory behind LOC, has described locus of control as “. . . whether or not the person perceives a causal relationship between his own behavior and the reward (Rotter, 1966).” Rotter identified two extremes in individual thought

concerning locus of control, one of which he called external locus of control, the other he referred to as internal locus of control. Rotter defined external locus of control as the consequences of one's actions "typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of forces surrounding him (Rotter, 1966)." Conversely, a person with an internal locus of control, as defined by Rotter, "perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics (Rotter,1966)."

A person with an internal locus of control believes she can influence situational outcomes, while a person with an external locus of control believes outcomes are unpredictable or under the influence of others, but not within her control. Studies have shown that individuals with an internal locus of control are more likely to initiate health education (Afuffo et al., 1993; Wallston et al., 1976; DeVito et al., 1982; Wallston et al.,1976). Conversely, it follows that those with an external locus of control depend on others, such as health care providers, to introduce health education topics. Differences in locus of control may explain why some women search on their own for breastfeeding information and others do not. The aim of this research is to determine if maternal locus of control, as measured by Rotter's Generalized Expectancies for Internal Versus External Locus of Control, is related to initiation of education concerning infant feeding and to infant feeding choice.

Method:

Screening forms were used to recruit pregnant women from the Voss Center for Women and Family Health Care, both of Muncie, Indiana. Women who were in their third trimester of pregnancy, had decided upon a method of infant feeding at that time and who

were interested in participating in the study were contacted by telephone and invited to join the study. Each subject was sent a packet containing an informational letter, a demographic questionnaire, a questionnaire on infant feeding information, a locus of control survey (Rotter, 1966), and a postage-paid return envelope. The demographic questionnaire included questions concerning age, race, education, number of children and (if applicable) method of infant feeding for previous children. The infant feeding information questionnaire asked the subjects to describe prenatal sources of information (health care provider, family, friends, reading materials, audiovisual materials and other) and to identify who initiated the giving of information (other, self, both). The locus of control survey consisted of 23 pairs of statements related to control of life events; subjects were asked to select one statement for each pair that best described their personal opinions. An example of a pair of statements is, "Many of the unhappy things that happen in people's lives are partly due to bad luck" and "People's misfortunes result from mistakes they make." Subjects received a telephone reminder if the packet was not returned within two weeks. Subjects who did not return the packet within one month or before their expected due date (whichever came first) were dropped from the study.

Some of the study participants did not complete the last page of the LOC survey. Data analysis were, therefore, accomplished using only 17 of the 23 questions. In order to normalize the results, total scores were adjusted by multiplying the actual score by 23 and dividing the product by 17. Data were analyzed using Student's *t*-test to assess the differences in locus of control among women who planned to feed their infants exclusively breast milk, exclusively formula, or a combination of the two during the first month of life.

A total of 98 women were recruited for the study. Of the 89 women who completed and returned the questionnaires within the required time frame, 30 planned to breastfeed, 28 planned to formula-feed, and 31 planned to feed a combination of breast milk and formula.

Demographic characteristics of the sample are shown in Table 1. The women ranged in age from 16 to 39 years with an average age of 28.1 years. Ninety-nine percent of the participants were white, 58% were experienced mothers and 62% had at least some college education. While there were no statistical differences in age ($p=.50$) among the women, there was a statistical difference in their level of education ($p=.05$). Although the percentage of experienced mothers was similar in the breastfeeding and combination-feeding groups, there was a significantly higher incidence of experienced mothers in the formula-feeding group ($p=.03$).

Adjusted locus of control scores ranged from 0 (internal locus of control) to 17.6, with an average score of 9.7 ± 3.7 . There was no difference in locus of control scores ($p>.05$) among women planning to breastfeed (mean = 9.1), formula-feed (mean = 10.5) or feed a combination of breast milk and formula (mean = 9.7).

Data concerning sources of prenatal infant feeding information are provided in Table 2. The most frequent sources of information cited by participants were health care providers (82%) and reading materials (82%). At least two-thirds of subjects indicated that they had discussed infant feeding with family (75%) and friends (73%). Audiovisual materials were utilized by 20% of the women. Other sources, typically described by fewer than 5% of the sample, included the internet, prenatal classes, previous infant feeding experience and the Special Supplemental Food Program for Women, Infants and

Children (WIC). There were no significant differences in types of information sources used by subjects planning to breastfeed, planning to formula-feed or planning to feed a combination of breast milk and formula ($p>.05$).

Data concerning the initiator (other, self, or both) of infant feeding information are presented in Table 2. The health care provider introduced the topic of infant feeding, either independently or in addition to conversations initiated by the subject, in 80% of the cases. Information from reading materials was obtained exclusively through the initiation efforts of others in 46% of the cases and in combination with initiation efforts by the subject in 29%. Although few women received information from audiovisual resources ($n=18$), 95% of these women reported the receipt of the materials was initiated, at least in part, by another individual. Subjects were most commonly initiators of infant feeding discussions with family (55% self, 18% both) and friends (49% self, 24% both).

There was no relationship observed between maternal locus of control and infant feeding choice. Although LOC provides some insight into general human behavior and the motivation behind it, it may be relatively insensitive to a very specific behavior, such as infant feeding. A similar, but more specific instrument, the Multidimensional Health Locus of Control, was created by Wallston et al. to assess the value an individual places on health and their corresponding LOC (Wallston et al., 1976). This instrument has been used to examine a variety of health-related behaviors, including: health promotion activities by older married couples (Padula, 1997), health instruction by primary and secondary school teachers (Carey et al., 1995), and health promotion behavior in one- and two-parent families (Ford-Gilboe, 1997). The Multidimensional Health LOC may have detected an existing relationship between locus of control and infant feeding choice, but it

is also possible that LOC is but one factor in a dynamic and complex system which determines a woman's choice of infant feeding method.

Subjects frequently cited health care providers as a source of infant feeding information. This finding is consistent with those described by Giugliani and associates (Giugliani et al., 1994). Although the present study found no relationship between infant feeding information from health professionals and planned method of infant feeding, research reported by Grossman and associates suggests health care providers can be influential in the decision-making process (Grossman et al., 1990). In an effort to provide every woman the opportunity to make a fully-informed choice about infant feeding, both the American Dietetic Association and the American Academy of Pediatrics strongly recommends that health professionals offer breastfeeding education to pregnant patients (ADA, 1997; AAP, 1997). Nevertheless, 18% of subjects reported they had not discussed infant feeding with a provider despite repeated contacts during prenatal visits.

The majority of subjects discussed infant feeding with family (67%) and friends (73%) during the prenatal period. Of the 5 sources of infant feeding information explored, subjects were most likely to initiate conversations with family and friends. Similar use of these individuals among women in the three groups lends additional support to the theory that women's choices for infant feeding are strongly related to attitudes and beliefs of their families and social groups (Giugliani et al., 1994). Broad-based breastfeeding promotion programs and inclusion of family members in breastfeeding education activities may be a valuable strategy to indirectly influence breastfeeding initiation rates.

Conclusion

While the results of this study do not support the hypothesis that there is a relationship between maternal locus of control and infant feeding choice, it does reveal some interesting facts about the sources and modes of information a woman uses when making a decision concerning infant feeding. It is significant to note that the majority of women discussed infant feeding with family and friends. This indicates a need to improve the perceptions of society concerning breastfeeding, and to create an informed and supportive breastfeeding environment for women in the prenatal period who seek information and opinions concerning infant feeding.

Currently, the majority of the responsibility to educate women concerning infant feeding options is left to the health care provider. However, it was discouraging to note that while over 80% of the women stated that they had discussed infant feeding with their health care provider, there was no significant difference between the three groups. This seems to indicate that, while health care providers did discuss infant feeding with their patients, this discussion was not influential in persuading them to breast-feed. It is possible that the information received from the health care provider was of a generic, informative nature, which left women to make a decision with no recommendation by the physician. If physicians are not utilizing the prenatal period to inform women of the benefits of breastfeeding and make sincere recommendations to that end, they are doing a disservice to both the mother and the infant.

In future research, it would be valuable to investigate not only the source of the information but the quality of the information. This would reveal whether physicians are merely informing women of their options or if they are recommending breastfeeding as

the best source of early infant nutrition. Such a study would also provide additional information about the sources of reading material, and the potential biases contained therein. For example, a brochure provided by a formula company would be, at best, neutral in its content, and, at worst, discouraging of exclusive breastfeeding and encouraging of infant formula for supplementation or exclusive use. In contrast, a brochure from La Leche League, a non-profit breastfeeding support group, would be very supportive of breastfeeding and a useful tool in informing and recommending breastfeeding. Because one of the goals of health care providers should be to provide accurate information, uncovering the level of bias encountered by women as they explore infant feeding would be valuable in assisting health care workers to that end.

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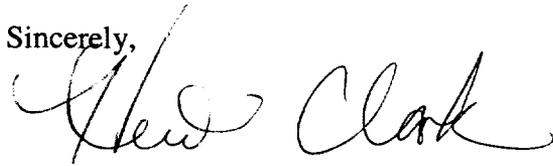
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Sincerely,

A handwritten signature in cursive script that reads "Heidi Clark". The signature is written in black ink and is positioned to the right of the word "Sincerely,".

Heidi Clark